DEPARTMENT OF THE INTERIOR
BUREAU OF EDUCATION

BULLETIN, 1918, No. 25

INDUSTRIAL EDUCATION IN WILMINGTON, DELAWARE

REPORT OF A SURVEY MADE UNDER THE DIRECTION OF THE COMMISSIONER OF EDUCATION

WASHINGTON
GOVERNMENT PRINTING OFFICE
1918

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WASHINGTON, D. C.
AT

15 CENTS PER COPY

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LETTER OF TRANSMITTAL.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, October 18, 1918.

SIR: I am transmitting herewith for publication as a bulletin of the Bureau of Education a report of the survey of industrial education in the city of Wilmington, Del. The study was made and the report prepared under the direction of this bureau by Fred C. Whitcomb, professor of industrial education in Miami University, Oxford, Ohio. It is a part of a comprehensive constructive educational survey of the State of Delaware which has been undertaken by this bureau at the request of education officers of the State and of the city of Wilmington.

Reports of other parts of the survey will be recommended for publication as separate bulletins later.

Respectfully submitted.

P. P. CLAXTON,
Commissioner.

The SECRETARY OF THE INTERIOR.

PREFACE.

This report represents one section of the comprehensive survey of the State of Delaware which is being made by the United States Bureau of Education of the Department of the Interior in cooperation with the Delaware Educational Cooperation Association.

The field work of this section of the survey was done during November and December, 1915, and January, 1916. A conference of representatives of the various interests especially concerned with the survey was called at Wilmington. The following persons were present:

Dr. William T. Bawden, specialist in industrial education, representing the Bureau of Education.
Hon. C. A. Wagner, State commissioner of education, Dover.
Mr. C. J. Scott, superintendent of public schools, Wilmington.
Mr. John H. Hickey, organizer, American Federation of Labor, Wilmington.
Mr. W. C. Davis, secretary, Central Labor Union, Wilmington.
Dr. T. O. Cooper, board of education, Wilmington.
Mr. J. F. Robinson, instructor in charge of metalworking, public high school, Wilmington.
Mr. S. A. Davis, educational secretary, Young Men's Christian Association, Wilmington.
Miss Jennette Eckman, secretary, General Service Board of Delaware, Wilmington.
Mr. Fred C. Whitcomb, professor of industrial education, Miami University, Oxford, Ohio.

At this conference an outline of the proposed plan of this section of the survey (see Appendix A) was submitted and discussed. The plan met with general approval and promises of hearty cooperation.

This general conference was followed by others with the executive board of the Central Labor Union and groups of men representing the different locals of the Central Labor Union. In addition conferences were held with individuals representing the various interests in the city, such as the chamber of commerce, manufacturers, and employers of labor, the schools (public and private), business, Young Men's Christian Association, business colleges, etc.

During the progress of the survey each labor union local was visited and the work of the survey explained. Cooperation of all interests was freely given. Especial thanks are due Mr. C. J. Scott,

superintendent of the public schools of Wilmington, for his untiring efforts to make the work of the survey a success. The records in his office and the help of his corps of teachers were at all times available. Thanks are due also to Mr. John H. Hickey, organizer, American Federation of Labor, for his assistance in arranging for meetings with the different locals and groups of men representing the different trades.

Mr. L. A. Davis, educational secretary of the Young Men's Christian Association, was especially helpful in arranging for meetings of groups of men in the association rooms, and in furnishing information on the educational facilities available for men and boys who have left the schools and are at work.

INDUSTRIAL EDUCATION IN WILMINGTON, DELAWARE.

CHAPTER I.

INTRODUCTION.

DELAWARE.

With the exception of Rhode Island, Delaware is the smallest State in the Union. With an area of 2,370 square miles, it is twice as large as Rhode Island. Outside of the city of Wilmington, the interests of the State are almost exclusively rural and agricultural.

WILMINGTON.

Wilmington, the metropolis of Delaware, is located in New Castle County, on the Delaware River, at the junction of the Christiana and Brandywine Rivers. Its area is 10.18 square miles, and it has 5 miles of frontage on the Delaware River.

The population of Wilmington was 87,411 in 1910, or 43.2 per cent of the total population of the State, and it was the only city in the State having a population of more than 5,000. From 1900 to 1910 the population of the city increased 14.3 per cent. Since 1910 the increase in population has been much more rapid.

Wilmington is situated midway between New York and Washington, 27 miles from Philadelphia, and 69 miles from Baltimore. Excellent transportation facilities are provided by three railroads, three interurban trolley lines, and freight and passenger steamship lines. The city has easy access to markets for fuel and raw materials, with low freight rates.

The original charter of the Borough of Wilmington was granted by the State legislature in 1832.

COMPULSORY ATTENDANCE LEGISLATION.

According to a law passed in 1907, and amended in 1909, each child between the ages of 7 and 14 is required to attend a day school in which the common English branches are taught. Such attend-

ance must be continuous and for at least five months each year. This five-month's period must begin not later than one month after the opening of school. A child may be excused from attendance only on presentation of a certificate showing that he is "prevented from attendance upon school or application to study by mental, physical, or other urgent reasons."

A proviso in the law, however, gives any school district power "at its regular annual meeting to reduce the period of compulsory attendance to not less than three months." It is also provided that instruction for a like period in a private school or by a legally qualified governess or private teacher in a family or by any other means approved by the county superintendent of schools shall exempt from attendance at a public school.

Provision is also made for the employment of attendance officers, and for other means for enforcing the law, the details of which need not be discussed here.

LEGISLATION CONCERNING EMPLOYMENT OF MINORS.

In 1913 the State legislature passed "an act to regulate the employment of children and to make uniform the laws relating thereto." The more important provisions of this law may be summarized as follows:

1. The employment of no child shall in any way interfere with the provisions of the compulsory school law or "prevent children of any age from receiving industrial education furnished by the United States, this State, or any city or town in the State and duly approved by the State board of education, or by a school board, or committee, or other duly constituted public authority."

2. No child under 16 years of age who is not provided with an employment certificate may be permitted to work except in agriculture, domestic service, the canning industry, places of amusement, and street trades.

3. Employment certificates are of two classes, general employment certificates and vacation employment certificates. A general employment certificate entitles the holder to work during the entire year, and a vacation employment certificate entitles the holder to work only at such times as the law does not require him to attend school.

4. In addition "street trades permits" are required of all boys under 14 and all girls under 16 who wish to sell newspapers, periodicals, etc., outside of school hours.

5. The law further provides that:

> In any case where the labor of a child under the age as specified in this act is necessary to assist in the support of itself or its family * * * the State child-labor inspector shall present the case of such child to the judge of the

juvenile court of the city of Wilmington * * *' and also to the agent of the Society for the Prevention of Cruelty to Children, and if said judge and said agent shall sign a permit for said purpose, the said child shall be allowed to work for not exceeding one year from the date of said permit, and said permit may be renewed by said judge and said agent from year to year.

Few such permits have been issued.

6. Certain special restrictions are prescribed as to ages of children who are employed:

(*a*) No child under 12 years of age may work in a canning or packing establishment except those handling perishable fruits or vegetables.

(*b*) No child under 14 may work in a mill, factory, workshop, mercantile or mechanical establishment, office, restaurant, or hotel, barber shop, stable, or garage, or as messenger; etc.

(*c*) No child under 15 may be employed about moving machinery, where dangerous materials are used, or in any other occupation dangerous to life or limb, or injurious to the health or morals of such child.

(*d*) In general no child under 16 may be employed with any theatrical performance or show.

(*e*) No person under 21 may be employed in connection with any saloon or barroom where intoxicating liquors are sold.

(*f*) The hours of employment are restricted.

7. No employment certificate may be issued unless the following papers are presented:

(*a*) A school record showing that the child has attended school regularly for not less than 130 days either during the 12 months previous to arriving at the age of 12 years or during the 12 months previous to applying for such school record, and is able to read intelligently and to write legibly simple sentences in the English language.

(*b*) A certificate from the school physician stating that the child has reached the normal development of a child of its age and is physically able to perform the work for which a child between 12 and 16 may be legally employed.

(*c*) Evidences of age, etc.

8. In the establishments for the canning and packing of fruits and vegetables there are no restrictions either as to age or as to the number of hours of employment. Also in the street trades there is no minimum age for the issuing of permits outside of school hours.

These weaknesses in the law furnish opportunity for the employment of very young children and for long hours of employment in certain trades.

9. City and county superintendents of schools are designated as the officials to issue employment certificates and permits.

ENFORCEMENT OF THE CHILD-LABOR LAWS.

The labor commission of the State appoints every four years a State child-labor inspector and an assistant to carry out the provisions of the child-labor laws. The secretary to the city superintendent of schools issues the employment certificates and permits in Wilmington. The State child-labor inspector and his assistant devote the major portion of their time to carrying out the provisions of the State child-labor laws. They materially assist in enforcing the provisions of the compulsory attendance laws.

CHAPTER II.

A STUDY OF CERTAIN GROUPS OF PUBLIC SCHOOL PUPILS.

In a number of recent survey reports attention is called to the significance for vocational education of a study of pupils in the public schools who are 13 or 14 years of age. As shown in Table 1 the public schools in Wilmington retain the children very well until the age of 13 is reached. The number of pupils 13 years of age is 18.7 per cent less than the number 12 years of age, while the number 14 years of age is 26.5 per cent less than the number 13 years of age. In the private and parochial schools the pupils are held up to the age of 11 years about as well as in the public schools, but after that age the dropping out is more rapid than in the public schools.

TABLE 1.—*Age distribution of pupils enrolled in public, private, and parochial schools in Wilmington, Del., 1915–16.*

Years of age	Public schools.			Private and parochial schools.			Pupils of each age for each 100 pupils 7 years of age.	
	Boys.	Girls.	Total.	Boys.	Girls.	Total.	Public schools.	Private and parochial schools.
5	34	37	71	23	14	37	5	7
6	524	546	1,070	171	153	324	82	63
7	643	659	1,302	262	270	532	100	100
8	603	630	1,233	265	256	521	95	98
9	597	573	1,170	225	238	463	90	87
10	553	586	1,139	219	226	445	87	84
11	561	603	1,164	197	275	472	89	89
12	539	623	1,162	213	201	414	89	78
13	471	474	945	121	157	278	73	53
14	337	357	694	101	103	204	53	38
15	221	287	508	80	60	140	39	21
16	168	176	344	22	21	43	26	8
17	80	114	194	17	15	32	15	6
18	33	44	77	6	7	13	6	2
Over 18	12	13	25	1	2	3	2	0.6
Total	5,376	5,723	11,006	1,893	2,008	3,901		

SOME FACTS CONCERNING PUPILS 13 AND 14 YEARS OF AGE.

Table 2 presents a summary of the number of pupils enrolled in public, private, and parochial schools who were 13 and 14 years of

age; also the places of birth and intentions as to further schooling reported by those enrolled in public schools; as to the last-named items reports from parochial and private school children were not available.

TABLE 2.—*Summary of reports of pupils 13 and 14 years of age, Wilmington, 1915–16.*

	Boys.	Girls.	Total.
Number reported enrolled in public schools	808	832	1,640
Number reported enrolled, parochial schools	163	205	368
Number reported enrolled, private schools	59	55	114
Total	1,030	1,092	2,122
PUBLIC SCHOOLS ONLY.			
Number of questionnaires sent to pupils	808	832	1,640
Number of questionnaires returned	704	649	1,353
Places of birth reported by pupils:			
Wilmington	457	395	852
Delaware, but outside of Wilmington	43	52	95
United States, but outside of Delaware	161	157	318
Foreign countries	39	27	66
Not reporting	4	18	22
School intentions:			
Not to complete eighth grade	148	70	218
To complete eighth grade	541	445	986
To go to high school	403	440	843
To go to college	148	126	274
To go to business college	33	60	93
Not reporting	16	19	35

There were 1,030 boys and 1,092 girls, or a total of 2,122 pupils, of these ages enrolled in the schools of Wilmington at the time this information was gathered. Of these, 1,640 were in the public schools, and blanks were filled by 1,353. Of these 1,353 children, almost two-thirds were born in Wilmington, and almost 100 more in the State outside of the city. Only 66 were born in foreign countries.

As shown in Table 2, the school intentions of the boys and girls 13 and 14 years of age in the Wilmington public schools are very encouraging. But the available facts relating to the present enrollment in the schools go to show that in all probability not half of these intentions will be realized. As more than one-half of these boys and girls are below their normal grades in the schools, and as they have either just passed the compulsory school age or are about to reach it, it is reasonable to expect a much larger number to drop out of school than have so indicated in their record of school intentions. Also the school enrollments by ages as shown in Wilmington and elsewhere indicate the same result.

As shown in Table 3, fewer than one-fourth of the fathers of these pupils were born outside of the United States, 23.8 per cent. Almost an equal proportion, 21.7 per cent, were born in Wilmington.

TABLE 3.—*Birthplaces of fathers of pupils 13 and 14 years of age in the public schools of Wilmington.*

Places of birth.	Number.	Per cent.
Wilmington	294	21.7
Elsewhere in Delaware	160	11.8
Elsewhere in United States	458	33.9
Foreign countries	322	23.8
Not reported	119	8.8
Total	1,353	100.0

Table 4 shows that the 2,122 pupils who are 13 and 14 years old are distributed through all of the eight grades and three years of the high school. With these children overageness is prominent. The proportion of children of normal age for the grade in which they are enrolled ranges from 42.9 per cent for 13-year-old boys to 48.2 per cent for 13-year-old girls. Records in the superintendent's office of the ages of pupils who withdrew from school during the period September to December, 1915, show that pupils 14 years of age formed the largest group.

TABLE 4.—*Grade distribution of pupils 13 and 14 years of age in the public schools of Wilmington.*

Grades.	Number of pupils of each age in each grade.					
	13 years of age.			14 years of age.		
	Boys.	Girls.	Total.	Boys.	Girls.	Total.
1	1	3	4	.....	1	1
2	7	4	11	2	3	5
3	21	8	29	11	3	14
4	53	42	95	11	10	21
5	98	97	195	36	26	62
6	126	153	279	65	84	140
7	**161**	**180**	**341**	98	108	206
8	**93**	**124**	**217**	**111**	**126**	**237**
I	29	19	48	**80**	**85**	**165**
II	3	1	4	24	12	36
III	.....	.....	.....	.....	3	3
Total	592	631	1,223	438	461	899
Per cent of total who are of normal age for the grade in which they are enrolled [1]	42.9	48.2	45.6	43.6	45.8	44.7

[1] Note black-face figures.

Table 5 shows the theoretical distribution of boys 13 years of age in the Wilmington public schools for each 10,000 boys of this age, for comparison with Dr. Ayres's figures resulting from a study of 22,027 boys. It will be observed that in both studies more than one-half of the boys are found in the sixth grade and below, although the Wilmington schools make a better showing in this respect than those reported by Ayres.

TABLE 5.—*Number of boys 13 years of age there would be in each grade in the Wilmington public schools for each 10,000 boys of this age, compared with distribution of 22,027 boys computed by Ayres.*

Grades.	Number of boys in each grade.		Number of boys in and below each grade.	
	Distribution of boys in Wilmington public schools.	Distribution of 22,027 boys (Ayres).	Distribution of boys in Wilmington public schools.	Distribution of 22,027 boys (Ayres).
1	21	25	21	117
2	85	76	106	193
3	382	316	488	509
4	934	944	1,422	1,453
5	1,613	1,814	3,035	3,267
6	2,017	2,493	5,052	5,760
7	2,781	2,507	7,833	8,267
8	1,742	1,441	9,575	9,708
I	361	243	9,936	9,951
II	64	28	10,000	9,979
III		15		9,994
IV		6		10,000
Total	10,000	10,000		

Table 6 presents an analysis of the principal occupations reported in the 1910 census for Wilmington, together with the occupations chosen by pupils 13 and 14 years of age, and the occupations followed by relatives of these pupils. A summary of these figures for the principal census classifications, reduced to per cent basis, is given in Table 7.

TABLE 6.—*Distribution of occupations, Wilmington.*

Occupations.	Persons pursuing occupations stated (1910 census).		Chosen by pupils 13 and 14 years of age.		Occupations of fathers.		Occupations of employed brothers and sisters.	
	Male.	Female.	Boys.	Girls.	Boys.	Girls.	Male.	Female.
Total in all occupations	30,225	9,905	466	258	643	537	402	203
Agriculture, forestry, etc.	211	5	20		6	12	15	
Farmers	106	3	17		3	10	12	
Foresters, lumbermen, etc.	7		3		1		1	
Gardeners, florists, etc.	88	2			2	2	2	
Extraction of minerals	182					1		
Manufacturing and mechanical	17,488	2,975	192	99	403	372	206	108
Apprentices	371	46					8	
Bakers	130	6	1		2	3	1	2
Blacksmiths and forgemen	330		3		7	6	3	
Boilermakers	213						1	
Brick and stone masons	223		4		7	5	1	
Builders and contractors	145	1	3		10	9	1	
Butchers and dressers	43		4		4	2	2	
Cabinetmakers	200		1		10	3	1	
Carpenters and coopers	1,321		25		39	52	6	
Dressmakers and seamstresses		702		70				91
Dyers	43	1			2	1		
Electricians, etc.	256		30		7	10	11	
Engineers, mechanical	49		16		2			
Engineers, stationary	278				12	13		
Firemen	181				6	1		
Foremen and overseers	379	33			33	25	1	3
Furnacemen, etc.	80				2			

TABLE 6.—*Distribution of occupations, Wilmington*—Continued.

Occupations	Persons pursuing occupations stated (1910 census).		Chosen by pupils 13 and 14 years of age.		Occupations of fathers.		Occupations of employed brothers and sisters.	
	Male.	Female.	Boys.	Girls.	Boys.	Girls.	Male.	Female
Manufacturing and mechanical—Continued.								
Jewelers and watchmakers	27	1				1	1	
Laborers	5,269	139	1		70	79	42	6
Machinists, millwrights	1,359		75		42	54	30	
Managers and superintendents	179	2			6	6		
Manufacturers and officials	295	8			8			
Mechanics, not specified	41		1		17	7	2	
Milliners, etc	4	165		23				3
Molders, founders, casters	379				18	22	8	
Painters, glaziers, etc	620	1	3		15	17	5	
Paperhangers	92	1				6	1	
Patternmakers and model makers	88	1	1		3	3	1	
Plasterers	65					1	3	
Plumbers, etc	509		9		15	7	13	
Pressmen (printing)	11							
Rollers, roll hands (metal)	30						1	
Roofers and slaters	75				1			
Sawyers	28				1			
Semiskilled operatives	3,370	1,686	3	6	41	16	52	83
Shoemakers and cobblers	104	2			4	6	2	
Tailors and tailoresses	127	53	2		7	5	1	
Tinsmiths and coppersmiths	132		1		6	1	2	
Upholsterers	102	6	1		1			
Transportation	3,681	81	45	1	78	52	24	5
Water transportation	93	1			9	1	1	
Road and street transportation	683	1	12		17	9	12	
Railroad transportation	2,239	5	23		40	39		
Express, post, telegraph, etc	256	10	10	1	7	2	10	5
Other transportation	420	5			5	1		
Trade	3,639	1,013	67	6	106	76	89	70
Bankers, brokers, etc	80	1				1		
Clerks in stores	324	119	45		17	23	60	51
Commercial travelers	91	5	2					
Deliverymen	372	1	1		23		4	1
Insurance agents and officials	192	1			8			
Newsboys	31						5	
Real estate agents, etc	79	3			2		1	
Retail dealers	1,368	224	17		50	52	2	
Salesmen and saleswomen	631	636		6	6	10	17	18
Undertakers	40	3	2					
Public service	538	3	7		11	3		
Guards, watchmen, etc	132				3			
Laborers	121				1			
Marshals, sheriffs, etc	19				1			
Officials (city and county)	62	2			1			
Officials (State and United States)	25	1				2		
Soldiers, sailors, and marines	28		7			1		
Professional service	1,041	802	124	127	13	11	8	12
Actors and actresses	16	8		1				1
Architects	23	1	5			1		
Artists, etc	34	14	4					
Authors, editors, and reporters	29	5		2	2	1		
Chemists, assayers, etc	37	1	9	1		1		
Civil and mining engineers	83		31					
Clergymen	120	1			6	3		
Dentists	42	2						2
Designers, draftsmen, etc	217	5	30		1	2	6	
Lawyers, judges, etc	91		12					
Musicians, etc	80	103	12	37	1	1	2	2
Photographers	21	3			1	1		1
Physicians and surgeons	106	8	19	1	1	1		
Teachers	49	461	2	83				1
Trained nurses	2	100						
Other professional pursuits	10	43	2	1				6
Attendants and helpers	39	17					1	

TABLE 6.—*Distribution of occupations, Wilmington*—Continued.

Occupations	Persons pursuing occupations stated (1910 census).		Chosen by pupils 13 and 14 years of age.		Occupations of fathers.		Occupations of employed brothers and sisters.	
	Male.	Female.	Boys.	Girls.	Boys.	Girls.	Male.	Female.
Domestic and personal service	1,355	4,033	11	24	24	9	12	40
Barbers, hairdressers, etc	245	42	6	4	6	7	4	1
Bartenders and saloonkeepers	218	10	.....	.....	5	.....	.....	.....
Elevator tenders	24	.....	1	.....	1	.....	.....	.....
Hotel keepers and managers	59	6	.....	.....	.....	.....	.....	.....
Housekeepers and stewards	25	267	.....	5	.....	.....	.....	.....
Janitors and sextons	146	44	.....	.....	6	.....	1	.....
Laundry operatives	27	151	.....	.....	1	.....	.....	12
Midwives and nurses (untrained)	6	197	.....	4	1	.....	.....	.....
Restaurant and café keepers	51	11	.....	.....	1	.....	.....	.....
Servants	221	2,111	.....	8	2	1	3	23
Waiters and butlers	140	97	2	3	2	1	4	4
Clerical pursuits	2,090	993	.....	1	2	1	49	28
Agents, canvassers, etc	147	16	.....	.....	1	1	2	.....
Bookkeepers, cashiers, etc	398	366	.....	1	.....	.....	.....	3
Clerks (except in stores)	1,195	162	.....	.....	1	.....	1	2
Messengers, office boys, etc	232	3	.....	.....	.....	.....	33	.....
Stenographers and typewriters	118	446	.....	.....	.....	.....	13	23

TABLE 7.—*Per cent distribution of occupations, Wilmington.*

Occupations	1910 census, Wilmington.		Chosen by pupils 13 and 14 years of age.		Occupations of fathers.		Occupations of employed brothers and sisters.	
	Male.	Female.	Boys.	Girls.	Boys.	Girls.	Male.	Female.
Total, all occupations	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Agriculture, forestry, etc	0.7	0.1	4.3	.....	0.9	2.2	3.7	.....
Extraction of minerals	.6	.....	.....	.....	.....	.2	.....	.....
Manufacturing and mechanical	57.9	30.0	41.2	38.4	62.7	69.3	51.2	41.1
Transportation	12.2	.8	9.6	.4	12.1	9.7	5.7	1.9
Trade	12.0	10.2	14.4	2.3	16.5	14.1	22.1	26.6
Public service	1.8	(1)	1.5	.....	1.7	.6	.....	.....
Professional service	3.4	8.1	26.8	49.2	2.0	2.0	2.0	4.6
Domestic and personal service	4.5	40.7	2.4	9.3	3.7	1.7	3.0	15.2
Clerical pursuits	6.9	10.0	.....	.4	.3	.2	12.2	10.6

[1] Less than one-tenth of 1 per cent.

The occupations chosen by the largest numbers of boys are:

Machinist, millwright	75
Clerk in store	45
Electrician	36
Civil and mining engineer	31
Designer, draftsman	30

Aside from the general classes of laborers and semiskilled operatives, the largest group reported in the 1910 census for males are:

Railroad transportation	2,239
Retail dealers	1,368
Machinists, millwrights	1,359

Carpenters, coopers	1,324
Clerks (except in stores)	1,195
Road and street transportation	683
Salesmen	631
Painters, glaziers	620
Plumbers	509

Among the fathers of the boys and girls the largest groups reported are:

Laborers	149
Retail dealers	102
Machinists, millwrights	96
Carpenters, coopers	91
Railroad transportation	79
Foremen, overseers	58
Semiskilled operatives	57

The occupations chosen by the largest numbers of girls are:

Teacher	83
Dressmaker, seamstress	70
Musician	37
Milliner	23

The occupations reporting the largest numbers of females in the 1910 census are:

Servants	2,141
Semiskilled operatives	1,086
Dressmakers, seamstresses	702
Saleswomen	636
Teachers	481
Stenographers, typewriters	446
Bookkeepers, cashiers	366

Referring to Table 7, it will be noted that although the manufacturing and mechanical industries represent 58 per cent of the occupations of males as reported in the 1910 census, only 41 per cent of the occupations chosen by the boys fall in this class. On the other hand, 27 per cent of the boys have chosen occupations included under professional service, whereas this group represents but 3 per cent of the total number of occupations according to the census.

Among the girls the proportion choosing manufacturing and mechanical pursuits, 38 per cent, is greater than the proportion of employed females in this class as reported by the census, 30 per cent. The proportion of girls choosing professional occupations, 49 per cent, is more than six times that of employed females in this class, 8 per cent; while the proportion of girls choosing domestic and personal service, 9 per cent, is less than one-fourth that of females who are thus employed in Wilmington, 41 per cent.

It will be noted, further, that the occupations of the fathers and employed brothers and sisters are distributed more nearly in accord

with the census distributions, except that the occupations of the brothers are but one-half the census proportion in the transportation class, and the occupations of both brothers and sisters are nearly twice the census proportions in trade (commercial) pursuits.

In Table 8 the reasons assigned by pupils for the choices of occupation reported are classified. Nearly two-thirds of these boys and girls, 61.9 per cent, state that they chose the occupations because they *liked* them. As they had not worked at these occupations (except in a very few instances), and in the absence of any systematic plan of vocational guidance in the schools, it is doubtful if these boys and girls had an adequate basis for giving this answer.

TABLE 8.—*Reasons given for choice of occupation by pupils 13 and 14 years of age, Wilmington.*

Reasons reported.	Number of pupils reporting.		
	Boys.	Girls.	Total.
Because they like it	172	196	368
To earn a living	63	68	131
To assist parents	12	17	29
Because it is parents' wish	12	13	25
Had no reason for choice	7	12	19
Occupation furnishes good opportunities	7	3	10
Selected for social reasons	5	4	9
Because parents have similar work	3		3
Total	281	313	594

Of the 2,122 pupils 13 or 14 years of age, only 160, or 7.5 per cent, report working for wages outside of school hours (Table 9). It is worthy of note also that, of the boys nearly seven-eighths, 84.9 per cent, have found their opportunities in trade (commercial) pursuits, while the opportunities in manufacturing and mechanical pursuits are practically negligible.

TABLE 9.—*Occupations outside of school hours of pupils 13 and 14 years of age.*

Occupations.	Number of pupils reporting.	
	Boys.	Girls.
Manufacturing and mechanical pursuits	4	2
Dressmakers, seamstresses		2
Laborers	1	
Shoemakers, cobblers	1	
Tinsmiths, coppersmiths	2	
Transportation	2	
Hostlers, stable hands	2	

TABLE 9.—*Occupations outside of school hours of pupils 13 and 14 years of age*—Continued.

Occupations.	Number of pupils reporting.	
	Boys.	Girls.
Trade	118	
Clerks in stores	20	
Delivery boys	23	
Helper in store	1	
Newsboys	19	
Retail dealers	5	
Public service	4	
Laborers	4	
Domestic and personal service	11	19
Barbers	6	
Nurses		4
Servants	2	15
Other pursuits	3	
Total	139	21

FACTS CONCERNING HIGH-SCHOOL BOYS AND GIRLS.

Investigation showed that in the Wilmington public schools there are one-fourth as many pupils in the first year of high school as in the first grade, and also that there are almost as many pupils in the first year of high school as in the eighth grade. It appears further that there is a big shrinkage after the first year of high school, there being only about one-half as many pupils in the second year as in the first year. The fourth year shows only one-fourth as many pupils as entered the high school.

It was found, also, that in the parochial and private schools only one-tenth as many pupils are in the first-year high school as in the first grade. These high schools, however, hold their pupils much better than do the public high schools. In the public schools 7 out of every 100 found in the first grade are in the fourth-year high school, while in the parochial and private schools similar figures show 6 in the fourth year of the high school.

Questionnaires were submitted to pupils of the public high schools only. At the time of making this survey 1,067 pupils, 491 boys and 570 girls, were enrolled in these schools. These ranged in ages from 12 years to a few over 18 years. About one-fourth of the enrollment was overage. The greatest percentage of overageness was found in the first year of the high school, where it is 31 per cent. This would indicate that a large share of the withdrawals during and at the end of the first year is due to the fact that these boys and girls realize that they are behind in their school work and so become discouraged.

Reports were secured from 1,005 pupils, 482 boys and 523 girls.

PLACES OF BIRTH.

Table 10 shows the birthplaces of these pupils, of whom 779 were born in the State of Delaware, and all but 100 of these in the city of Wilmington. Only 12 of the total number of high-school pupils, 1.1 per cent, were born outside of the United States, whereas Table 2 shows that 4.8 per cent of the pupils 13 and 14 years of age were foreign born.

TABLE 10.—*Birthplaces of high-school pupils, Wilmington.*

Places of birth.	Number of pupils reporting.		
	Boys.	Girls.	Total.
Wilmington	329	350	679
Elsewhere in Delaware	46	54	100
Elsewhere in United States	103	111	214
Foreign countries	4	8	12
Total	482	523	1,005

The public high school for whites offers four courses. These four courses were chosen by the 1,005 high-school pupils studied in the following numbers: Classical, 311; commercial, 286; Latin-scientific, 241; general, 167. The boys chose them in the order of Latin-scientific, general, commercial, classical; while the girls chose the classical first and the others in the order of commercial, general, Latin-scientific.

Table 11 presents an analysis of the reasons given by the pupils for the courses selected. One-third of the total number, 33.3 per cent, give preparation for college as the reason for their choices, while 209, or 20.7 per cent, chose their courses as preparation for commercial work.

TABLE 11.—*Number of pupils enrolled in high-school courses, with reasons assigned for choices, Wilmington.*

Reasons assigned for choices.	Number of pupils in specified courses.														
	Total in all courses.			Classical.			Commercial.			Latin-scientific.			General.		
	Boys.	Girls.	Total.	Boys.	Girls.	Total.	Boys.	Girls.	Total.	Boys.	Girls.	Total.	Boys.	Girls.	Total.
Preparation for college	183	160	343	57	146	203	4	2	6	115	10	125	9	2	11
Preparation for commercial work	58	151	209	....	8	8	54	141	195	3	1	4	1	1	2
Because they like it best	34	70	104	3	35	38	10	5	15	4	10	14	17	20	37
Seems to be of most use	59	34	93	1	....	1	15	13	28	19	10	29	24	11	35
Preparation for industrial work	63	3	66	3	....	3	2	1	3	26	....	26	32	....	32
Preparation for teaching	....	43	43	....	27	27	....	6	6	....	8	8	....	2	2
Parents' choice	11	29	40	1	18	19	3	8	11	4	1	5	3	2	5
Wanted mathematics or science	32	....	32	....	....	....	1	....	1	17	....	17	14	....	14
To complete education	15	8	23	....	2	2	6	2	8	....	1	1	9	3	12
Do not know	12	10	22	1	4	5	3	3	6	5	2	7	3	1	4
Preparation for professional work	7	8	15	2	2	4	3	1	4	2	1	3	2	2	4
Advice of teacher	3	1	4	....	1	1	1	....	1	1	....	1	2	....	2
Suited to pupils' abilities	3	1	4	....	....	....	1	1	2	....	....	....	2	....	2
Total	482	523	1,005	68	243	311	103	183	286	199	42	241	116	51	167

Two years of manual training are required of the boys in all four courses, while the same amount of work in domestic science is required of the girls. In the questions submitted to the pupils two had to do with this work. The first question asked whether, if manual training and domestic science were not required, they would choose these subjects. To this 811 pupils—379 boys and 432 girls—stated that they would do so, while only 194—103 boys and 91 girls—would not do so.

Table 12 states the reasons given by the pupils for and against choosing these subjects. Almost one-third of the pupils like the work, while one-half consider the subjects either necessary or useful in an education. Only one-tenth stated that they do not like the work. A larger number of girls than boys seem to like the work, while the practical value of the work seems more apparent to the boys than to the girls. The value of the practical arts in an education is felt by a larger number of girls than boys.

TABLE 12.—*Reasons assigned by high-school pupils for and against choosing manual training or home economics as subjects in their courses, Wilmington.*

Reasons assigned.	Number of pupils who would choose.			Number of pupils who would not choose.		
	Boys.	Girls.	Total.	Boys.	Girls.	Total.
They like the subjects	121	157	278	.....	.....	.....
Consider them useful or of benefit	155	116	271	.....	.....	.....
Necessary to one's education	79	144	223	.....	.....	.....
No reason assigned	24	15	39	37	21	58
Do not like the subject	.....	.....	.....	39	53	92
Do not see the need of the work	.....	.....	.....	27	17	44
Total	379	432	811	103	91	194

These answers should be very encouraging to the school authorities in strengthening the high-school work in the practical arts.

The second question asked of the high-school pupils related to their intentions as to further schooling. The replies are summarized in Table 13. As in the case of pupils 13 and 14 years of age, these declarations of intention greatly overrate the schooling probabilities. While more than nine-tenths of these high-school pupils state that they expect to complete the high-school course, the enrollment figures for 1915–16 show only about one-fourth, 28.3 per cent, as many pupils in the fourth year of the high school as in the first. Almost two-thirds of the high-school pupils plan to go on to other schools or colleges, although in all probability not more than one-half of this number will do so.

TABLE 13.—*Intentions with reference to further schooling reported by high-school pupils, Wilmington.*

Intentions.	Number of pupils reporting.		
	Boys.	Girls.	Total.
Regarding high-school work:			
To complete a high-school course	425	485	910
Not decided	28	23	51
Not to complete a high-school course	28	15	43
Not reporting	1		1
Total	482	523	1,005
Regarding other schooling after leaving high school:			
To go to some other school	307	307	614
Not to attend other school	75	148	223
Not decided	76	53	129
Not reporting	24	15	39
Total	482	523	1,005

It would be of incalculable value to community, State, and Nation if, through the more earnest cooperation of parents, teachers, and pupils, these high hopes and ambitions could be more fully realized.

As shown in Table 14, of 305 employed brothers and sisters of high-school pupils only about one-tenth, 10.8 per cent, are under 17 years of age.

TABLE 14.—*Age distribution of employed brothers and sisters of high-school pupils who are under 21 years of age, Wilmington.*

Age period.	Number of employed brothers and sisters who are under 21 years of age.		
	Brothers.	Sisters.	Total.
13 years or under	8	2	10
14 to 16 years, inclusive	14	9	23
17 to 20 years, inclusive	162	110	272
Total number reported	184	121	305

OCCUPATIONS CHOSEN BY HIGH-SCHOOL PUPILS.

Of the 1,005 high-school pupils who reported, 805, or 80 per cent, replied to the question, "What do you plan to do to earn a living?" Table 15 presents a summary of the occupations chosen by these pupils, together with the reported occupations of fathers and employed brothers and sisters. The per cent distribution of occupations by principal classes is shown in Table 16.

TABLE 15.—*Distribution of occupations chosen by high-school pupils and engaged in by relatives, Wilmington.*

Occupations.	Chosen by high-school pupils.		Occupations of fathers.	Occupations of brothers and sisters.	
	Boys.	Girls.		Male.	Female.
Total in all occupations	389	416	818	154	130
Agriculture, forestry, etc.	24	.....	40	2	.....
Farmers	18	.....	31	1	.....
Foresters, lumbermen, etc.	4	.....	.....	.....	.....
Gardeners, florists, etc.	1	.....	1	1	.....
Stock raisers, dairy farmers, etc.	1	.....	8	.....	.....
Manufacturing and mechanical	135	7	392	40	21
Apprentices	.....	.....	.....	7	.....
Bakers	.....	.....	10	.....	.....
Blacksmiths, etc.	.....	.....	3	.....	.....
Brick and stone masons	.....	.....	7	.....	.....
Builders and contractors	2	.....	33	.....	.....
Carpenters	3	.....	32	.....	.....
Compositors, linotypers, etc.	6	.....	.....	.....	.....
Dressmakers, etc.	.....	4	.....	.....	4
Electricians, electrical engineers	46	.....	7	5	.....
Engineers (mechanical)	24	.....	4	1	.....
Engineers (stationary)	4	.....	.....	.....	.....
Firemen	.....	.....	2	.....	.....
Foremen, overseers	.....	.....	56	.....	.....
Laborers	.....	.....	33	2	10
Machinists, millwrights, etc.	5	.....	53	12	.....
Managers, superintendents	26	.....	16	4	.....
Manufacturers, officials	.....	.....	25	.....	.....
Mechanics (not specified)	6	.....	13	1	.....
Milliners	.....	3	.....	.....	5
Painters, glaziers, etc.	.....	.....	15	.....	.....
Pattern makers	1	.....	.....	.....	.....
Paper hangers, etc.	1	.....	.....	.....	.....
Plumbers, etc.	.....	.....	24	7	.....
Semiskilled operatives	3	.....	13	3	3
Other pursuits	2	.....	48	4	.....
Transportation	4	.....	68	17	2
Brakemen	.....	.....	3	1	.....
Conductors	.....	.....	16	.....	.....
Draymen, chauffeurs, expressmen	.....	.....	11	9	.....
Foremen and overseers	.....	.....	4	.....	.....
Laborers	.....	.....	3	4	.....
Locomotive engineers	.....	.....	4	.....	.....
Mail carriers	.....	.....	4	.....	.....
Motormen	.....	.....	4	.....	.....
Ship captains	1	.....	.....	.....	.....
Telegraph and telephone operators	.....	.....	9	2	2
Wireless expert	1	.....	.....	.....	.....
Other pursuits	2	.....	8	1	.....
Trade	21	9	181	12	39
Bankers, brokers, etc.	3	.....	7	.....	.....
Clerks in stores	12	6	98	2	22
Deliverymen	.....	.....	.....	1	.....
Insurance agents	.....	.....	11	.....	.....
Real estate agents	2	1	10	.....	.....
Retail dealers	.....	2	94	.....	.....
Salesmen and saleswomen	2	.....	22	6	16
Other pursuits	2	.....	9	3	1
Public service	8	.....	38	4	.....
Guards, watchmen, etc.	.....	.....	1	.....	.....
Laborers	.....	.....	17	.....	.....
Military expert	1	.....	.....	.....	.....
Officials, inspectors, etc.	.....	.....	12	3	.....
Policemen	.....	.....	3	.....	.....
Soldiers, sailors, etc.	5	.....	.....	1	.....
Other pursuits	2	.....	5	.....	.....

TABLE 15.—*Distribution of occupations chosen by high-school pupils and engaged in by relatives, Wilmington*—Continued.

Occupations.	Chosen by high-school pupils.		Occupations of fathers.	Occupations of brothers and sisters.	
	Boys.	Girls.		Male.	Female.
Professional service	148	227	47	7	7
Architects	4				
Artists	3	6			
Civil engineers	39				
Chemists	31				
Clergymen	3		11		
Dentists	2				
Draftsmen, designers, etc	30	2			
Lawyers	13	2	5		
Musicians, music teachers, etc	2	41	3	2	
Physicians	15	7	11		
Teachers	2	140	2		7
Trained nurses		21			
Other pursuits	4	8	15	5	
Domestic and personal service			19	2	6
Barbers			3		
Janitors			3		
Launderers and laundresses					3
Restaurant keepers			5		
Saloon keepers			5		
Servants				1	3
Other pursuits			3	1	
Clerical occupations	49	173	35	64	45
Agents			4		
Bookkeepers	13	25	31	7	9
Clerks (except in stores)	13	16		47	2
Private secretaries	3	19			
Stenographers	12	113		11	34
Other pursuits	5				

TABLE 16.—*Per cent distribution of occupations chosen by high-school pupils and engaged in by relatives, Wilmington.*

Occupations.	Chosen by high-school pupils.		Occupations of fathers.	Occupations of brothers and sisters.	
	Boys.	Girls.		Male.	Female.
Total in all occupations	100.0	100.0	100.0	100.0	100.0
Agricultural, forestry, etc	6.2		4.9	1.3	
Manufacturing and mechanical	34.7	1.7	47.9	29.9	17.5
Transportation	1.0		8.1	11.0	1.7
Trade	5.4	2.2	22.1	7.8	32.5
Public service	2.1		4.6	2.6	
Professional service	33.0	54.5	5.7	4.5	5.8
Domestic and personal service			2.3	1.3	5.0
Clerical occupations	12.6	41.6	4.3	41.6	37.5

The occupations chosen by the largest numbers of boys are:

Electrician, electrical engineer	46
Civil engineer	39
Chemist	31
Draftsman, designer	30
Manager, superintendent	26
Mechanical engineer	24

The largest groups of occupations of fathers are:

Retail dealers	94
Foremen, overseers	56
Machinists, millwrights	53
Builders, contractors	33
Laborers	33
Carpenters	32
Farmers	31
Bookkeepers	31

The largest groups of employed brothers are:

Clerks (except in stores)	47
Machinists, millwrights	12
Stenographers	11

The largest groups of occupations chosen by the high-school girls are:

Teacher	140
Stenographer	113
Musician, music teacher	41
Bookkeeper	25
Trained nurse	21

The largest groups of employed sisters are:

Stenographers	34
Clerks in stores	22
Saleswomen	16
Laborers	10

Referring to Table 16, very large proportions of both boys and girls have chosen occupations in the professional service group as compared with the proportions of fathers and of employed brothers and sisters who have actually found employment in this group. The proportion of boys choosing manufacturing and mechanical pursuits is 17 times as great as the proportion of girls, and the proportion of girls choosing clerical pursuits is three times as great as the proportion of boys.

A comparison of the choices made by the high-school pupils with the occupations chosen by pupils 13 and 14 years of age, as well as the occupations of employed brothers and sisters, is shown in Table 17.

TABLE 17.—*Per cent distribution of occupations chosen by high-school pupils, pupils 13 and 14 years of age, and engaged in by employed brothers and sisters of high-school pupils, Wilmington.*

Occupations.	Number of boys.			Number of girls.		
	High-school pupils.	Pupils 13 and 14 years of age.	Employed brothers.	High-school pupils.	Pupils 13 and 14 years of age.	Employed sisters.
Total, in all occupations	100.0	100.0	100.0	100.0	100.0	100.0
Agriculture, forestry, etc	6.2	4.3	1.3	.....	.....	.....
Manufacturing and mechanical	34.7	41.2	29.9	1.7	33.4	17.5
Transportation	1.0	9.6	11.0	.....	.4	1.7
Trade	5.4	14.4	7.8	2.2	2.3	32.5
Public service	2.1	1.5	2.6	.....	.....	.....
Professional service	38.0	26.6	4.5	54.5	49.2	5.8
Domestic and personal	.....	2.4	1.3	.....	9.3	5.0
Clerical occupations	12.6	.....	41.6	41.6	.4	37.5

Both classes of pupils chose the professions very largely. Since the high-school pupils are, to a considerable extent, a selected class of boys and girls, their choice is not so inconsistent with their probable future occupations as is that of the younger pupils. However, both sets of answers show the tendency of our schools to lead the pupils toward the professions. No doubt the influence of the two large business colleges had a great deal to do with the large number of pupils, especially girls, choosing the clerical occupations.

Table 18 is enlightening as to the reasons underlying the choices of occupation. More than one-fifth of the pupils, 23.3 per cent, assigned no reason at all, or "did not know" why they made the choice reported, while more than one-half, 52.7 per cent, had no better reason than that they like the chosen occupation or think of it as interesting. Here again, as in the case of the pupils 13 and 14 years of age, there is evident need for systematic vocational guidance.

TABLE 18.—*Reasons given for choice of occupation by high-school pupils, Wilmington.*

Reasons reported.	Number of pupils reporting.		
	Boys.	Girls.	Total.
Because they like it, or it seems interesting	228	305	530
No reason given	121	100	221
A paying occupation or offers a good living	45	14	59
Seem fitted for it	37	44	81
Choice of relatives, or advice of others	18	9	25
To earn a living	.....	24	24
Offers good opportunities	22	.....	22
Do not know	1	13	14
Fondness for children (teaching)	.....	9	9
Work is nice, clean, healthful, or refined	5	1	6
Useful occupation	1	2	3
An open field	3	.....	3
Training for West Point	1	.....	1
Will be "my own boss"	1	.....	1
Good education	1	.....	1
Honest occupation	1	.....	1
Preparation for civil service	1	.....	1
Does away with complications	1	.....	1
Total	452	523	1,005

The occupations of these pupils outside of school hours (Table 19), show little relation either to the occupations chosen or to the courses pursued in the high school.

TABLE 19.—*Occupations outside of school hours of high-school pupils, Wilmington.*

Occupations.	Number of pupils reporting.	
	Boys.	Girls.
Agriculture, forestry, etc.	1	
Trapping	1	
Manufacturing and mechanical	7	2
Butcher's helper	3	
Dressmaker		1
Helpers in printing office	4	
Tobacco stripper		1
Trade	122	8
Clerk in store	20	8
Delivery boy	4	
Elevator operator	1	
Fruit seller	1	
Helper in grocery store	18	
Milk boy	4	
Meat peddler	1	
Newsboy	68	
Salesman	5	
Public service	2	
Lighting street lamps	1	
State service	1	
Professional service	8	4
Librarian		1
Piano player	2	
Teacher of music	1	3
Usher in theater	5	
Domestic and personal service	5	
Helper in barber shop	1	
Bowling alleys	2	
Helper in restaurant	2	
Clerical occupations	21	1
Bookkeeper	1	
Clerk (except in store)	3	1
Collector	2	
Errand boy, office boy	19	
Not reported	27	18
Total	193	33

CHAPTER III.

A STUDY OF THE INDUSTRIES.

IMPORTANCE AND SCOPE.

The 1915 trade directory of the city of Wilmington is authority for the statement that there are $100,000,000 invested in manufactures in the city, and that the annual pay roll is $18,000,000. These estimates were probably somewhat large at the time this directory was issued, but there has been a tremendous growth in manufactures since that time.

The Census Bureau's preliminary statement of the general results of the census of manufactures for the city is given in Table 20. The comparative statements in this table for the year 1909 and 1914, respectively, do not show anything like the percentages of increase which would be shown at the present time.

TABLE 20.—*Comparative summary of manufactures in Wilmington: U. S. Census, 1909 and 1914.*

	1914	1909	Per cent of increase, 1909–1914.
Number of establishments	319	261	22.2
Persons engaged in manufactures	17,087	16,295	4.9
Proprietors, firm members	231	190	21.6
Salaried employees	1,789	1,442	24.1
Wage earners (average number)	15,067	14,663	2.8
Primary horsepower	38,974	29,282	33.1
Capital	$46,406,000	$38,504,000	20.5
Cost of services	$11,058,000	$9,688,000	14.1
"Salaries"	$2,364,000	$1,751,000	35.0
"Wages"	$8,694,000	$7,937,000	9.5
Cost of materials	$22,140,000	$21,976,000	.7
Value of products	$39,358,000	$38,069,000	3.4
Value added by manufacture (value of products less cost of materials)	$17,218,000	$16,093,000	7.0

This table does not include steam laundries, as these were listed separately in the census. These employed 346 persons during 1914, represented a capital investment of $236,664, and the amount received for work done was $226,382.

During the period 1909 to 1914 the amount of capital invested increased 20.5 per cent, the number of establishments increased 22.2

per cent, and the number of salaried employees increased 24.1 per cent, while the average number of wage earners is reported to have increased but 2.8 per cent, and the value of products manufactured 3.4 per cent.

Table 21 presents a summary of the principal industries of Wilmington from the census report for 1909. The leather industries are given first place, with 3,241 employees and products valued at $12,079,225. Next come three independent car-building plants, and three car building and repair shops operated by railroad companies, which together employed 3,466 persons and turned out products valued at $6,879,294.

TABLE 21.—*Summary of the principal industries, Wilmington, 1909.*

Industries.	Number of establishments.	Total number of persons engaged.	Proprietors and firm members.	Salaried officers, superintendents and managers.	Clerks.		Wage earners 16 years of age and over.[1]			Wage earners under 16 years of age.[1]	Value of products.
					Male.	Female.	Total.	Male.	Female.		
Leather, tanned, cured, and finished	16	3,241	12	52	105	27	3,045	2,311	719	15	$12,079,225
Steam railroad cars, not including operation of railroad companies	3	1,837	....	42	111	5	1,679	1,664	14	1	3,628,093
Cars and general shop construction and repairs by steam railroad companies	3	1,629	....	27	77	....	1,525	1,522	....	3	3,251,201
Bread and bakery products	36	269	36	4	19	12	198	167	28	3	629,134
Printing and publishing	22	297	14	17	43	13	210	147	51	12	373,313
Tobacco manufactures	16	196	16	2	3	....	174	37	128	9	234,219
Carriages and wagons and materials	11	127	14	5	4	1	103	102	1	....	180,802
Lumber and timber products	4	23	5	....	....	....	18	18	....	....	20,142
All other industries	150	8,677	93	265	482	126	7,711	6,495	1,065	151	17,663,254
Total	261	16,295	160	414	844	184	14,663	12,463	2,006	194	38,069,383

[1] Average number.

Under "all other industries" are included the three great war munitions companies which have headquarters in Wilmington. One of these is the largest single manufacturing establishment in the city. The chamber of commerce report states that millions of dollars are invested in this gigantic enterprise, which has numerous plants in various parts of the United States.

According to the report of the chamber of commerce the principal products manufactured in Wilmington in the general order of their importance are:

Glazed kid.
Leather.
Steel and wooden ships.
Steel and wooden railroad cars.
Car repairing.
Iron, steel, and brass castings.
Specialized machinery.
Vulcanized fiber.
Machine tools.
Rubber hose.

Tobacco.
Cotton goods and textiles.
Hosiery.
Talking machines.
Paper.

Soda-pulp.
Paper and sugar-mill machinery.
Plumbing fixtures and supplies.
Leather belting.
Refrigerating machinery.

Brick and terra cotta.
Paints and chemicals.

Architectural woodwork.
Aluminum castings.
Structural iron.

Boilers.
Car wheels.
Marine engines.
Jute.
Kaolin.

Explosives.
Ribbon.
Valves.

ANALYSIS OF PRINCIPAL INDUSTRIES.

The limited time and force available made it impossible to undertake a detailed study of the industries of Wilmington. Using as a basis the findings of the vocational education survey of Richmond, Va.,[1] groups of laborers, employers, and others were consulted, and these findings, as they applied to several of the more important groups of trades in Wilmington, were corrected to meet conditions in that city.

As shown in Table 7, page 18, 57.9 per cent of employed males and 30 per cent of employed females were engaged in manufacturing and mechanical industries in 1910.

(a) THE METAL-WORKING INDUSTRIES.

The metal-working industries, together with the leather industries, are the most important in the city. As already stated, the products of the metal-working industries include steel ships, railroad cars, car repairing, castings, specialized machinery, machine tools, talking machines, plumbing fixtures and supplies, structural iron, boilers, car wheels, marine engines, valves, etc.

The processes in the various trades of this group seem to be about the same as those outlined in the Richmond survey report, although the trades do not seem to be quite so highly specialized as indicated therein.

The consensus of opinion of a group of workers representative of the different trades of this occupational group was that the numbers of journeymen employed in Wilmington in the different trades are about as follows:

[1] See "Vocational Education Survey of Richmond, Va.," Bulletin 162, U. S. Bureau of Labor Statistics, Washington, D. C.

Puddlers, 25.
Heaters, 25.
Rollers, 15 to 20.
Wood pattern makers, 45.
Metal pattern makers, 6.
Iron molders, 200.
Brass molders, 30.
Machinists, normally 1,000 (now 1,200 to 1,500).
Core makers, 50 (also some girls).
Blacksmiths, 60.
Boiler makers, riveters, and buckers, 500.
Pipe fitters, 200.
Railway car and ship painters, 300.
Tinsmiths, sheet metal workers, and car repairers, no estimates given.

At the time this inquiry was made there was a demand for skilled workers in all these lines, and there was difficulty in getting enough men to supply the demands. Normally the supply is about equal to the demand.

The metal-working trades are organized, varying from about 40 per cent to about 80 per cent.

(b) THE BUILDING INDUSTRIES.

As is usual in all cities, these industries are important. Carpenters and joiners are classed together as carpenters. Within the city limits framed structures are restricted to one-story buildings or small additions, and special permits are required for these. There is considerable demand for carpenters in the frame parts of ships (these frame parts are almost entirely above deck, as the construction below deck is chiefly metal).

The men consulted in this group of industries also reported at the present time a phenomenal demand for almost all classes of workers, also that normally the supply and demand are about equal.

The workers in the different building trades were reported to be in numbers as follows:

Carpenters and joiners, 500.
Bricklayers, 170.
Stonemasons, 50.
Stone setters and stonecutters, 15.
Structural ironworkers, few in the city, imported when needed.
Sheet metal workers: Inside, 75; outside, 75.
Plumbers and steam fitters, 200 to 250.
Inside wiremen, 150.
Plasterers, 50.
Machine woodworkers and cabinetmakers, 800.
Painters and paper hangers, building trades, 200.
Ship and car painters, 200.
Laborers, chiefly Italian, some colored, short supply.

The building trades are to a considerable extent organized. Some trades are almost completely organized, some 80 per cent, while several are not organized at all.

(c) PRINTING INDUSTRIES.

A group of men representing these industries estimated that there were about 120 workers in the printing trades, 104 men and 16 women. They grouped these as follows: Linotype machine operators, 20; makers-up and stone hand men, 8; monotype machine operators, 8; hand compositors, 84.

There are about 6 or 8 stereotypers in Wilmington. The proof readers are chiefly boys and women. The hand composition is chiefly in the job offices. There are about 12 cylinder pressmen and 50 press feeders, the last chiefly girls. There are no steel or copper plate engravers or plate printers, no die stampers or packers, lithoengravers or transferrers, lithopressmen or feeders. Two photoengravers, but no etchers, were reported. Twenty bookbinders, 8 men and 12 women, were reported.

The printing trades were reported as about 50 per cent organized.

(d) WAGES AND HOURS OF LABOR.

In Wilmington the general impression seems to be that wages compare favorably with those paid in other communities for the same work.

The report of the General Service Board of Delaware makes the following statement about general labor conditions in Wilmington:[1]

> No detailed statistics on wage standards in the State or in Wilmington are available. Though Wilmington is an "open" town, the labor unions have been active. The Central Labor Union in Wilmington represents at present about 5,000 members in the various organizations composing the central body. This number includes one organization of women, but does not include any of the railroad organizations.
>
> There are no State labor provisions for male wage earners. The legal day for all classes of city employees in Wilmington is eight hours (policemen, special officers, etc., excepted), and all classes of workmen on city work, whether employed directly or through contractors, must be paid at not less than the prevailing rate per day in the same trade in the locality where the work is done.
>
> In spite of Wilmington's size and industrial development there is in general a provincial community relation between employer and employee, and there have never been in the city or State the bitter and violent conflicts between employer and employee which have disrupted other communities. The employers, as far as can be judged, are willing to stand for square dealing with their employees, as the employer honestly sees his duty. Many employers have completely changed their attitude toward labor as a result of changes in industrial and social conditions in recent years and are facing the difficulty of putting into practice reforms in which they thoroughly believe and at the same

[1] See report of the organizing committee of the General Service Board of Delaware, 1914–15; Miss Jeannette Eckman, secretary, Wilmington, Del.

time having to compete with less progressive employers. While the increased cost of living and protracted periods of unemployment have put great pressure on the wage earner, the history of labor, on the whole, as has been pointed out, shows a freedom from selfish and ill-timed aggressions.

Taking these two aspects of the matter into consideration, there seems to be already in the local situation the basis of the principles of procedure most strongly advocated and indorsed at present by a number of active agencies in the city; that is, cooperation between employer and employees and the working out of a sound industrial policy for the State through careful and thorough study of local labor conditions and problems.

The Labor Commission of Delaware, consisting of five members, unpaid, one from each county and two at large, appointed by the governor, was created in 1913 by the legislature. This commission, which combines the administration of the child labor law and the "10-hour" law for women's labor, is the first step in the State toward the centralized handling of labor problems and conditions. Besides these two laws, the only other State provisions affecting labor are those which are made by the State board of health regarding labor camps, and the provisions of the cannery sanitation law regarding housing conditions for employees, and the sanitary precautions required of employers; also the irrigation commission is empowered to import labor for work on farms.

At both the 1913 and 1915 sessions of the legislature, bills introduced to create a "department of labor, industries, and social welfare" failed to pass.

The "10-hour" law for woman's labor limits the hours of employment to 10 per day, with an allowance of 12 hours for one day only during the week providing that the total hours of employment during the week does not exceed 55. Night work, any part of which is between 11 p. m. and 7 a. m., must not exceed 8 hours in any night.

Fruit and vegetable canning establishments do not come under this law. The employers and working girls are much interested in this "10-hour" law, and in general the former heartily cooperate with the labor commission in seeing that the law is enforced.

For the expenses of the labor commission, annual appropriations are made as follows: Salary of the labor inspector, $1,800; salary of his assistant (who is a woman), $1,000; general expense, $1,000.

Regarding the cannery-inspection law, the report of the General Service Board of Delaware has this to say:

> The provisions of this law are under the administration of an inspector appointed by and directly responsible to the governor of the State. He serves at a salary of $1,000, with an appropriation of $500 for expenses.
>
> A few of the canning factories in Delaware are still in very bad condition. And others, partly owing to the newness of the law, have not yet met all the requirements, but the better-class establishments come up to the general stand-

ards of the law, and are apparently cooperating with the inspector in an effort to comply with the details.

The canneries inspection law is one of the strongest and best laws in the State. The new part of the law passed in 1915 has adequate sanitary requirements for all establishments in which fruits and vegetables are canned or preserved, and gives the inspector full power for a strict enforcement of the law in every detail. He is to cause all offenders to be prosecuted in the court of general session of the county where the offense is committed, or he may close the factory in which violations occur until the necessary changes are made according to his directions. Sheriffs and constables are required by law to assist in the enforcement of the inspector's directions whenever called upon by the inspector.

Under an act of the legislature in 1915, the inspection of all abattoirs outside of Wilmington is also the duty of the canneries inspector.

Tables 22 and 23 give the information available concerning the years of apprenticeship, wages of apprentices and journeymen, and hours of labor in the metal trades and building trades in Wilmington. These facts were obtained from inquiries sent to manufacturers and from conferences with groups of workmen representing the different trades.

TABLE 22.—*Age of efficient entrance, years required to learn the trade, and wages in the metal-working trades—Wilmington.*

Firm.	Products or specialties.	Age of entrance.	Years to learn the trade.	Wages of apprentices, per week.					Wages of journeymen, per week.
				First year.	Second year.	Third year.	Fourth year.	Fifth year.	
1	Leather-working machinery.	16	5	$3.00	$3.50	$4.00	$4.50	$5.00	25 to 35 cts.[1]
2	Steel castings		4	5 cts.[1]	7½ cts.[1]	10 cts.[1]	12½ cts.[1]		
3	Roofing, furnaces	16	4	$3.50	$4.50	$6.00	$8.00		$16 - $20.
4	Marine gas engines	17	4	$2.50	$3.50	$4.50	$5.50		$14 - $25.
5	Machine tools	16							
6	Ships, cars, engines, etc.	18	4	5 cts.[1]	6¼ cts.[1]	8½ cts.[1]	10 cts.[1]		
7	Refrigerating machinery.	16-18	5	$3.00	$3.50	$4.00	$4.50	$5.00	$28 - $36.
8	Ships, general machinery.			10 cts.[1]					20 to 40 cts.[1]
9	Leather-working machinery.	16	5	$3.00	$4.00	$5.00	$6.00	$7.00	$12 - $20.
10	Fertilizer machinery.	16	5	$4.00	$4.50	$5.00	$6.00	$7.00	28 to 33⅓ cts.
11	Machinery		4	$4.00	$5.00	$6.00	$7.00		
12	Cars			10 cts.[1]	12 cts.[1]	14 cts.[1]	16 cts.[1]		
13	Car wheels		4	$3.00	$4.00	$5.00	$6.00		

Hours of labor: Forty-eight per week for the most part; some have Saturday afternoon off; some work 54 hours per week.

[1] Per hour.

TABLE 23.—*Years required to learn the trade and wages in the building trades—Wilmington.*

Building trades.	Years to learn the trade.	Wages of apprentices, per week.					Wages of journeymen.	Hours of labor per week.
		First year.	Second year.	Third year.	Fourth year.	Fifth year.		
House carpenters, ship joiners.	4	[4] $3–$4	$4–$5	$5–$6	$7–$8	.....	35 to 45 cts.[1]	48
Bricklayers	.....	$5–$6	.....	.....	$10–$12	.....	60 cts.[1]	44
Stonemasons	.....	(2)	.....	.....	.....	.....	$2.50—$4	.....
Stonesetters and cutters	.....	(2)	.....	.....	.....	.....	About $4 [3]	.....
Cement finishers	.....	(2)	.....	.....	.....	.....	$4 (helper $2) [3]	.....
Sheet-metal workers	.....	$3.50–$4.50	$4.50–$5.50	$5.50–$6.50	$6.50–$7.50	.....	35 to 45 cts.[1]	.....
Plumbers, steam fitters	.....	(4)	.....	.....	.....	.....	40 cts.[1]	.....
Inside wiremen	5	(4)	.....	.....	.....	.....	40 cts.[1]	.....
Plasterers	4	$5–$6	$6–$7	$7–$8	$8–$9	.....	60 cts.[1]	.....
Machine woodworkers, cabinetmakers.	.....	(5)	.....	.....	.....	.....	$5 [3]	.....
Painters, paper hangers	.....	.....	.....	.....	.....	.....	$3–$3.20	[3] 8 to 9
Laborers	.....	.....	.....	.....	.....	.....	15 to 25 cts.[1]	.....

[1] Per hour.
[2] No apprentices.
[3] Per day.
[4] Apprentices, $1 per day; helpers, $2 per day. Apprentices, $1 per day for two years; then helpers, at $2 per day for three years.
[5] Apprentices start at $8 per week.
Age of efficient entrance: For house carpenters, ship joiners, and bricklayers, 16 years; for other trades not reported.

In the printing trades, beginners usually receive $3 to $4 per week during the first year, with gradual increases during the apprentice period, which is nominally five years. No regular scale seems to be followed in all shops, however.

The union scale of wages is as follows: Day shifts, hand compositors, $18; machine operators, $21; night shifts, $2 per week higher. The nonunion wages paid range from $10 to $15 for men, and $6 to $8 for women.

The age of efficient entrance is placed at 16 years for apprentices and 21 years for journeymen.

The hours of labor in union shops are eight per day, and in nonunion shops, nine. Book and job printing shops close at noon on Saturdays; shops in which afternoon papers are printed work a full day on Saturday.

Union regulations allow one apprentice to five journeymen.

LACK OF UNIFORMITY OF CONDITIONS.

A study of the facts presented makes clear that working conditions in these industries in Wilmington are far from uniform, either as to wages or hours of labor. The initial wage of the apprentice in the metal-working trades ranges from 5 cents per hour, or $2.40 for a 48-hour week, to 10 cents, or $4.80. The wage paid during the fourth year of apprenticeship varies almost as much, ranging from

$4.50 to $8.00. In 6 of the 11 shops reporting, the wage increase from the first to the fourth year is 100 per cent or over, while in the remaining 5 it is 50 per cent or over.

Journeymen's wages range from 20 cents an hour, $9.60 for a 48-hour week, to $36, nearly four times as much. These industries, therefore, provide places for workmen of widely varying attainments and capacity.

Among all the shops reporting, there seems to be general agreement that there is no demand for young boys as beginners. The age of efficient entrance is placed at 16 years in most cases, and even higher in two cases.

Both employers and employees agree that the apprenticeship system is becoming less and less definite every year.

The representative of a large morocco company makes the statement that, so far as his knowledge goes, there have been no apprentices in the morocco business since 1886.

(e) OPPORTUNITIES FOR ADVANCEMENT.

One large manufacturer said: "Our foremen are ordinarily recruited entirely from our workmen." Other employers said: "That all men in their employ are given every possible opportunity to become familiar with the different branches of their business." Ability and interest in the business seem to be rewarded by promotion as far as possible.

(f) DEMAND IN EACH INDUSTRY FOR GENERAL EDUCATION, SPECIAL TRADE EDUCATION, AND SPECIAL MANIPULATIVE SKILL.

Groups of workers representing different trades agree in general with the findings of the Richmond survey in these particulars. Both workmen and employers agreed that at least a grammar school education is essential to success in the industries. The employers almost universally expressed a difficulty in obtaining an adequate supply of efficient workers.

Few employers considered that there is any unusual physical or nervous strain in their industries. With few exceptions, they agreed that the industries in which they are interested stimulate and promote the intelligence of their employees.

To a considerable extent the industries of Wilmington call for a high degree of skill in their workers.

Both employers and employees emphasized a need for mechanical drawing and practical mathematics for workers in many of the occupations.

Workers in different industries, especially in the metal-working, building, and printing trades, were asked to furnish information con-

cerning place of birth, education, experience, etc. The number of men responding to this request was not large enough to yield conclusive results. However, the facts brought out may be summarized briefly, as follows:

1. Place of birth: Wilmington, 79 per cent; elsewhere in Delaware, 10.5 per cent; elsewhere in the United States, 10.5 per cent.
2. With few exceptions, all had served so-called apprenticeships, ranging from three to five years, fully three-fourths serving for four years.
3. Two-thirds had had but one occupation; one-fourth, two occupations; and the others, either three or four different occupations.
4. Ages at time of leaving school varied from 10 years in the case of about 5 per cent to 18 years in the case of about 5 per cent. The largest number, about one-third, reported that they left school when 16 years of age.
5. The grades completed at the time of leaving school ranged from the fifth grade, completed by 3 per cent. to the fourth year high school, completed by about 10 per cent. The majority have completed the first year high school.
6. About 40 per cent of those reporting had made some effort to continue their education since leaving school and going to work. This schooling consisted of correspondence courses, business college courses, and other night-school work.
7. The majority had paid their own tuition for this additional schooling, and also reported that they had not completed the courses in which they had started.

(g) DEMAND IN EACH OCCUPATION FOR BOYS AND GIRLS.

Table 24, which is compiled from the 1910 census, gives the numbers of both males and females engaged in the manufacturing and mechanical industries in the State of Delaware (similar data for the city alone are not available) arranged by age groups.

TABLE 24.—*Age distribution of persons 10 years of age and over engaged in manufacturing and mechanical industries: Delaware, 1910.*

Age periods.	Per cent distribution.	
	Male.	Female.
10 to 13 years	0.1	0.6
14 to 15 years	1.0	5.9
16 to 20 years	11.7	30.5
21 to 44 years	59.0	48.3
45 years and over	28.2	14.7
Total	100.0	100.0

Of the total number of persons engaged in these industries, 1.1 per cent of the males and 6.5 per cent of the females are under 16 years of age, the age at which apprentices are received in most of the industries.

Of the males, 11.7 per cent, and of the females, 30.5 per cent are from 16 to 20 years of age, the normal apprenticeship period. Ac-

cordingly, 12.8 per cent of the males and 37 per cent of the females are under 21 years of age. The table shows that 59 per cent of the males and 48.3 per cent of the females are from 21 to 44 years of age.

Employment certificates are required by law of boys and girls of the second age group—14 and 15 years—who wish to work in mechanical and manufacturing industries, and certain restrictions are placed on holders of employment certificates. Consequently, children of these ages who wish to work are found mainly in other occupations, chiefly in offices and stores. Efficient youth are greatly in demand in these positions.

In most of the industries, apprentices and helpers are taken at the age of 16. The employers, as a rule, seem to wish to observe the regulations of the child labor law. One large manufacturer says:

> With the existing child labor law, we do not employ in this plant anybody under 16, and should there be any difficulty in the determination of the age, it is proposed to raise the limit for employing boys here to 17.

There is considerable demand for girls 14 and 15 years of age in the tobacco, leather, and textile industries. The demand in the manufacturing and mechanical industries for boys is not large until the age of 16 or 17 is reached.

At the present time in Wilmington, no earnest and industrious boy of 16 or over who has a common-school education and a reasonable amount of ability need have any trouble in getting good employment in the industries.

SUMMARY OF FINDINGS.

1. The City of Wilmington is a thriving industrial center with approximately one-fifth of its population engaged in manufacturing. The 260 different industrial establishments represent a wide range of industries, several of which are large and important.

2. The range of skill demanded in the industries is large. An unusually large number of workers are employed either in unskilled occupations or in those requiring a low degree of skill. A smaller number are employed in very highly skilled work.

3. The relations between employer and employee are exceptionally good, forming a basis for cooperation in trade agreements and vocational education. Also the labor commission of the State, together with a number of active civic organizations, have made a strong backing for cooperative efforts along these lines. Fairly satisfactory labor laws have been passed by the State, but there is a weakness in the means provided for their enforcement.

4. As usual throughout the country, the apprenticeship system is broken down and trade agreements are almost unknown. Helpers

take the place of apprentices and there is little opportunity for a thorough and broad training in the industry. Both employers and employees acknowledge and lament this fact.

5. Ninety per cent of the workers who reported were born in Delaware and 80 per cent in Wilmington. To a considerable extent then the city must train her own workers, and they are apt to stay to work in her own industries. This simplifies the industrial education problem.

6. The need for more education, especially of a practical nature, is manifested by both workers and employers. More schooling in the practical arts and in the fundamental subjects of the curriculum is desired by the workers for their children before they leave school. The workers manifest a desire also for evening schools for themselves.

CHAPTER IV.

YOUNG PEOPLE IN THE INDUSTRIES.

Two forms of working permits are granted by the State.[1] These are called "street-trades permits" and "employment certificates." A detailed study was made of holders of both of these classes of permits.[2]

I. BOYS HOLDING STREET-TRADES PERMITS.

Permits are issued by the superintendent of schools to boys under 14 years of age who wish to work at certain occupations outside of school hours, either during the summer or at other hours and days when the schools are not in session.

A boy wishing a permit must appear personally with a parent or guardian. He must present a statement from his school principal stating that, in his opinion, the applicant has reached the normal development of a child of his age, is an attendant at the school designated, is physically and mentally fit for the employment desired, and is able to do such work in addition to the regular school work as required by law. The boy must also present certified evidence of his age. The applicant is granted a card and a badge which he must carry with him while at work.

A weak point about this "street-trades permit" law in Delaware is that no minimum age limit is provided below which such permit will not be granted. If the applicant satisfies the requirements mentioned above, he is entitled to a permit.

Street-trades permits are legal for but one year (during the calendar year), and must be renewed each year. The numbers of such permits which have been issued are as follows: Previous to 1915, 305; during 1915, 165; during 1916 up to January 18, 45.

A detailed study was made of 150 of these permits which were issued during 1915. Tables 25 to 28 show the results of this study.

[1] See page 10.

[2] For copies of forms used for this purpose, see Appendixes C, D, E.

TABLE 25.—*Races, ages, and places of birth of boys holding street-trades permits—Wilmington.*

Race.	Number of boys of each age.					
	10 years.	11 years.	12 years.	13 years.	14 years.	Total.
White		4	64	72	8	148
Colored	1			1		2
Total	1	4	64	73	8	150

Places of birth.	Number.
Wilmington	110
Elsewhere in Delaware	11
Elsewhere in the United States	18
Foreign countries	10
Not reported	1
Total	150

The fact that only two permits were issued to colored boys, as shown in table 25, was explained by the statement that very little work open to colored boys was available. However, this fact, and the fact that only a small number of parochial-school boys were granted permits, are probably better explained by the lack of sufficient facilities for enforcing the child-labor laws. The public school authorities issue the street-trades permits and employment certificates, and therefore are in a better position to check up on their own pupils than on those in parochial and private schools. At the same time it is probably true that few boys of these ages in private schools would have occasion to apply for working permits.

While the number of individuals concerned is small, 150, it is worthy of note that 110 boys were born in Wilmington and only 10 were born outside of the United States.

As shown in Table 26, more than four-fifths of the boys are engaged in running errands or selling newspapers. The initiative of certain magazines of large circulation has shown the possibilities of training in salesmanship and business principles through proper organization of the work of newsboys. It is possible that equally valuable results would follow organization of the work of running errands and delivering messages.

Although the blank form of record filed in the office of the superintendent of public schools has a space for recording the reasons for going to work, these reasons are seldom given, as shown in Table 26. It would seem important that such reasons be stated.

TABLE 26.—*Occupations of boys holding street-trades permits, time when occupied, and reasons given for going to work.*

Occupations:	Number.
Errand boy	94
Newsboy	32
Helper for huckster	9
On milk wagon	6
Service and milk	2
Lamp lighter	1
Clerk	1
Telephone boy	1
Not reported	4
Total	150
Time when occupied:	
Out-of-school hours	75
Summer vacation	61
Both	13
Not reported	1
Total	150

Reasons given for going to work:	Number.
To earn money	8
To help mother	5
To make spending money	4
To help father	4
To keep out of mischief	3
To buy clothes	2
To earn money for fee for private school	1
To buy violin	1
Illness of father	1
Parents dead	1
No reasons given	120
Total	150

Table 27 shows that, while probably the school records of permit boys seem to justify the belief in their ability to do work outside of school hours, there is room for improvement in the character of their school work. The authorities should refuse to issue permits in all cases in which the school reports are not furnished.

TABLE 27.—*School records of boys holding street-trades permits—Wilmington.*

	Good.	Fair.	Poor.	Not reported.	Total.
Character of school work	32	31	22	65	150
School attendance	77	16	7	60	150
Conduct while at school	53	34	13	50	150

Kind of school attended at time of issue of permit:	
Public	136
Parochial	12
School outside of the city	1
Not reported	1
Total	150
Physical condition of boys at time of issue of permit, as shown by comparison of weight reported with standard weight for age reported:	
Number under weight for age	64
Number of normal weight for age	9
Number over weight for age	77
Total	150
Number of boys who permanently withdrew from school during the year 1915	17

TABLE 28.—*Age-grade distribution of boys holding street-trades permits—Wilmington.*

Grades.	Number of boys of each age.					
	10 years.	11 years.	12 years.	13 years.	14 years.	Total.
3		1	2	1		4
4	[1]1	1	9	3		14
5		2	14	12	1	29
6			[1]25	21	1	47
7			10	26	4	40
8			4	10	1	15
1					1	1
Total	1	4	64	73	8	150

Number of boys who are over age, 70, or 46.6 per cent.

[1] Black-faced figures show the number of boys of normal advancement.

While each permit is granted only on a statement of the school principal that the child has reached a stage of physical development commensurate with the normal development of a child of his age, a careful comparison of the age and weight of each child with adopted standards based on average weights of a large number of boys shows that 64, or 42.6 per cent, of the boys are under weight. Evidently this situation should be investigated further.

The significance of these figures is emphasized by a study of the age-grade classification of these boys. Table 28 shows that nearly one-half, or 46.6 per cent, of the boys are over age. The same table also suggests the probability that these boys will drop out of school in large numbers as soon as the end of the period of compulsory schooling is reached.

II. HOLDERS OF GENERAL EMPLOYMENT CERTIFICATES.

Employment certificates are necessary for all children between the ages of 12 and 16 years who wish employment "in any of the occupations or processes in which a child" of these ages may be employed legally.[1]

These are of two classes: General employment certificates for children who are 14 or 15 years of age and who wish to work during the entire year, and vacation employment certificates for children who are at least 12 years of age but have not reached the age of 16 and wish to work at such times during the year when the law does not require them to attend school.

Employment certificates have been issued in the following numbers: During 1914, 790; during 1915, 858; in 1916 up to January 18, 21; total, 1,869.

[1] See page 10.

A detailed study was made of 653 of these employment certificates—445 boys and 208 girls. Three boys are colored. The birth places of these boys and girls are as follows:

	Boys.	Girls.
Wilmington	302	148
Elsewhere in Delaware	26	10
Elsewhere in the United States	79	25
Foreign countries	37	25
Not reported	1	---
Total	445	208

The last schools attended before applying for certificates are reported as follows:

	Boys.	Girls.
Public school	296	113
Parochial school	122	80
Private school	8	3
School outside of the city	14	10
School not reported	5	2
Total	445	208

In less than two-thirds of the schools records of holders of general employment certificates was information given as to the last grade attended. Table 29 shows this grade distribution as far as records were available.

TABLE 29.—*Ages and school grades completed by holders of general employment certificates—Wilmington.*

Grade completed.	Number of each age at time of leaving school.					
	Boys.			Girls.		
	14 years.	15 years.	Total.	14 years.	15 years.	Total.
1				1		1
2	4	1	5	1	1	2
3	6	5	11	13	1	14
4	25	5	30	15	3	18
5	52	18	70	23	8	31
6	71	14	85	19	3	22
7	41	17	58	14	8	22
8	12	8	20	2	3	5
I	6	2	8	1	1	2
Total	217	70	287	89	28	117

Number of boys of normal advancement (black-face figures), 63, or 21.9 per cent; girls, 20, or 17 per cent.

Of the 287 boys reporting, 218, or 75.9 per cent, were over age for the grades which they had completed at the time of leaving school, assuming that a normal boy should have completed the seventh grade at 14 years of age and the eighth grade at 15 years. On the same basis, 96 of the 117 girls reporting, or 82 per cent, were over age. These facts harmonize with the conclusions reached by other investi-

gators that there is some causal relation between the school retardation, with the consequent discouragement and dissatisfaction, and the decision to leave school and apply for work permits.

No record could be found of any of these girls reëntering school after having been granted an employment certificate, though one boy was found to have done so. Fewer than one-half of these girls and three-fifths of the boys had completed the sixth grade.

Table 30 shows that only 23.9 per cent of the boys and 17.8 per cent of the girls who received employment certificates were of normal school age or below. The others ranged from one to six years behind their normal grades. More than one-fifth of the boys, 22.2 per cent, and one-third of the girls, 36.6 per cent, were three years or more behind the grades which they should have completed.

TABLE 30.—*Summary of age-grade distribution of holders of general employment certificates—Wilmington.*

Classes.	Boys.		Girls.	
	Number.	Per cent.	Number.	Per cent.
Under normal age for grade completed	6	2.0	1	0.8
Of normal age	63	21.9	20	17.0
One year behind normal grade	88	30.7	27	23.0
Two years behind normal grade	66	23.0	26	22.2
Three years behind normal grade	43	15.0	23	19.6
Four years behind normal grade	11	3.8	16	13.6
Five years behind normal grade	9	3.1	2	1.7
Six years behind normal grade	1	.3	2	1.7
Total who are one or more years behind grade	218	75.9	96	96.5
Grand total	287	100.0	117	100.0

As shown in Table 31, records of the quality of school work done are available for only a small proportion of the holders of general employment certificates—37 per cent of the boys and 42.8 per cent of the girls. Here again the maintenance of accurate records is urged.

Although a variety of reasons are given for leaving school to go to work (see Table 32), it appears probable that in many cases the main reason is that the boy or girl was falling behind in school, and becoming discouraged preferred to go to work rather than to continue in school. Only 164 boys and 111 girls, 42.1 per cent of the total number, report "necessity" as the reason for going to work, while 96 "dislike school" or were "doing poor work," and 97 applied for certificates to work "during the summer or on holidays."

TABLE 31.—*School records of holders of general employment certificates—Wilmington.*

Classes.	Number of boys reported in each class.							
	Excellent.	Very good.	Good.	Fair.	Poor.	Regular.	Irregular.	Not reported.
Quality of school work done in last grade completed		16	60	81	8			280
Quality of school work in grades below this grade	3	22	73	59	7			281
Attendance at school	7	35	78	45	7	117	58	270
Deportment at school								273
NUMBER OF GIRLS REPORTED IN EACH CLASS.								
Quality of school work done in last grade completed	30		41	18				119
Quality of school work in grades below this grade	27		36	19	2			124
Attendance at school						63	28	117
Deportment at school	57		28	5				118

TABLE 32.—*Reasons assigned for going to work by holders of general employment certificates—Wilmington.*

Reasons assigned.	Boys.	Girls.	Total.
Necessary	164	10	174
Family needs the money		101	101
To work in summer or on holidays	86	11	97
To make money	60	32	92
Dislike school	70	15	85
Doing poor work at school	11		11
Father wants boy to work	4		4
Weak eyes or other physical weakness	3	1	4
Attending business college at night	1	1	2
Has completed course in parochial school	1		1
To leave the city soon	1		1
To keep boy off the street	1		1
Reason not given	43	37	80
Total	445	208	653

A shown in Table 33, nearly three-fifths of the opportunities open to boys holding general-employment certificates were found in manufacturing and mechanical industries; approximately one-third found employment in stores; while fewer than one-tenth were employed in offices. While the great majority of these occupations are necessarily unskilled, it is altogether likely that many of them represent real opportunities for the capable and energetic boy to gain a foothold in the industrial or commercial world from which he may climb to better things. The indispensable conditions to such advancement, however, are ambition, organization of industry in such a way as to facilitate promotion, and education to fit the boy to assume greater responsibility.

TABLE 33.—*Positions which have been held by boys holding general-employment certificates—Wilmington.*

(NOTE.—This list includes the total number of positions held by 394 boys, 51 boys not reporting. Of the 394 boys, 152, or 38.5 per cent, have held more than one position.)

Employer.	Number.	Per cent.
Employees in manufacturing establishments	358	58.4
Laborers (work not specified)	114	
Woolen mills worker	34	
Folder and sorter	32	
Rivet passer and heater	18	
Iron sorter	13	
Apprentice	12	
Machine boy	12	
Shipping room work	10	
Hose worker	10	
Doffer	9	
Mail boy	8	
Bobbin boy	5	
Core maker	5	
Packer	5	
Baker	4	
Punching machine operator	4	
Drafting room helper	4	
Testing cans	3	
Yarn boy	3	
Tuber	2	
Threading machine operator	2	
Car builder	2	
Turner	2	
Patternmaker	2	
Bottle works employee	2	
Fitter	1	
Catcher	1	
Spinner	1	
Tin shop employee	1	
Picking spools	1	
Chafker	1	
Nail driver	1	
Spreader	1	
Counter	1	
Drill-press operator	1	
Nickel plater	1	
Employees in stores, etc.	203	33.1
Errand boy	112	
Messenger	58	
Delivery boy	16	
Clerk	6	
Elevator boy	3	
Usher	2	
Huckster	2	
Floor boy	2	
Butcher shop employee	1	
Salesman	1	
Employees in offices	52	8.5
Office boy, etc.	52	
Total number of positions reported	613	100.0

Table 34 shows that more than nine-tenths of the girls holding employment certificates found their opportunities in manufacturing establishments, only 6.1 per cent found employment in stores, while only 1.1 per cent found employment in offices; and not a single case of employment in homemaking occupations is reported. The wide

variety of occupations represented in Tables 33 and 34 suggest the difficulties involved in planning vocational courses for young persons of these ages that will have definite relation to specific occupations.

TABLE 34.—*Positions which have been held by girls holding general-employment certificates—Wilmington.*

NOTE.—This list includes the total number of positions held by 193 girls, 15 girls not reporting. Of the 193 girls, 76, or 39.3 per cent, have held more than one position.)

Employees.	Number.	Per cent.
Employees in manufacturing establishments	258	92.8
Cigar maker	30	
Roller	25	
Doffer	22	
Knitter	21	
Helper	20	
Turner	20	
Stripper	12	
Mill hand	11	
Trimmer	10	
Looper	9	
Seasoning	8	
Laundry girl	7	
Glazier	7	
Winder	7	
Folding room girl	6	
Packer	5	
Spinner	5	
Bander	5	
Sealing	4	
Operator of mis. line	4	
Mender	3	
Cutter	2	
Finisher	2	
Core-maker	2	
Sorter	2	
Bender, marker, sander, weigher, filler (1 each)	5	
Puncher, inspector, bundler, examiner (1 each)	4	
Employees in stores	17	6.1
Saleslady	12	
Milliner	2	
Store girl, cash girl, clerk (1 each)	3	
Employees in offices	3	1.1
Filing clerk	2	
Bookkeeper	1	
Total number of positions reported	278	100.0

Table 35 shows the number of positions held by the boys and girls reporting. The proportions of boys and girls who have held one position only are approximately the same—61.4 per cent and 60.6 per cent, respectively. However, 56 boys and 21 girls have held three or more positions each, presumably during the two-year period covered by the employment certificate legislation. One girl has held over 7 different positions and one boy reports 10.

TABLE 35.—*Number of positions held by holders of general-employment certificates—Wilmington.*

Number of positions held.	Boys.	Girls.	Total.
1	242	117	359
2	96	55	151
3	37	14	51
4	13	4	17
5	4	2	6
6	1	.....	1
7	.....	1	1
10	1	.....	1
Number of individuals reporting	394	193	587
Number not reporting	51	15	66
Total	445	208	653

The State child labor inspector is authority for the statement that, of the 1,648 employment certificates which had been issued up to January 1, 1916, about 700 were active at the date of this inquiry. A large number of the holders of these certificates have passed the age of 16, when they are no longer required, a number have moved from the city, and a few have returned to school. The inspector said that he had located all holders of active employment certificates except about six or seven.

The inspector also stated that there are in all probability at least 500 to 600 children 14 or 15 years of age who do not have employment certificates and are not in school. Many of these have had street-trades permits. A few of these have been found working under fictitious ages.

The inspector was of the opinion that the reason for so many different jobs being held by the same boys and girls is because fully 60 per cent of them are not dependable. The employers are anxious to secure the services of dependable boys and girls, but many of these young persons leave their places of employment without notice, and often because they think they can get an easier position or one which pays a little more money.

Frequently the children who have held the greatest number of different positions have changed the *kind of work* every time a new position was secured. As a rule there is small chance for much advancement in position or wages for employment certificate holders.

Few employment certificates are issued to colored boys, as very few jobs are open to them.

The chief reason why so many certificates are issued with no statement as to the position to be held is because the applicant has no definite position in view but hopes to secure one after getting the certificate. In many cases the child gets no job.

Employers are often lax about returning the certificates, as required by law, when the holder leaves their employ.

III. SPECIAL PERMIT BOYS AND GIRLS.

The State law provides for the issuing of special permits in extraordinary cases.[1] Only a few of these are granted each year. During the last 10 months of the year 1915, 31 such special permits were granted. Of these, 18 were granted because of the dire need of the parents of the applicant and 13 because of irregular school records, lack of birth records, physical condition under normal, and other special reasons.

Special permits also are necessary for workers in theaters or concert halls who are under the age of 16 years.

IV. EMPLOYED BROTHERS AND SISTERS.

The boys and girls 13 and 14 years of age in the public schools (records from 704 boys and 649 girls were received) were asked to give the names and addresses of brothers and sisters who were under 21 years of age and were at work. The names of 726 boys and girls were secured by this means, to whom letters and blank forms to be filled out were sent.[2]

Blanks from 107 boys and 54 girls were returned. Almost 100 letters were returned unclaimed, indicating that some addresses were erroneously given and that a number had changed their addresses.

The boys and girls ranged in age from 12 to 21 years, all but 24 being from 16 to 20 years of age (Table 36).

TABLE 36.—*Age distribution of employed brothers and sisters of public school pupils 13 and 14 years of age—Wilmington.*

Ages.	Boys.	Girls.	Total.
12 years	1		1
13 years			
14 years	3		3
15 years	13	4	17
16 years	20	8	28
17 years	15	14	29
18 years	18	11	29
19 years	16	6	22
20 years	19	10	29
21 years	2	1	3
Total	107	54	161

As shown in Table 37, more than one-half of these employed brothers and sisters were born in Wilmington, and only 20, or 12.4 per cent, were born outside of the United States.

[1] See page 10. [2] See Appendix F.

TABLE 37.—*Birth places of employed brothers and sisters.*

Birthplaces.	Boys.	Girls.	Total.
Wilmington	56	28	84
Elsewhere in Delaware	12	5	17
Elsewhere in the United States	24	15	39
Foreign countries	14	6	20
Not reported	1	.....	1
Total	107	54	161

As shown in Table 38, all but 15 of these young people who reported had attended the public schools. This is to be expected, since they are the brothers and sisters of public-school pupils. The significant fact disclosed by this table is that nearly nine-tenths of these brothers and sisters, 89.4 per cent, had attended the public schools in Wilmington.

TABLE 38.—*Distribution of schools attended by employed brothers and sisters.*

Location of last school attended.	Attending public schools.		Attending parochial or private schools.		Total.	
	Boys.	Girls.	Boys.	Girls.	Boys.	Girls.
Wilmington	88	34	6	9	93	43
Elsewhere in Delaware	3	.....	.....	.....	3	.....
Elsewhere in the United States	5	4	1	.....	6	4
Foreign countries	.....	3	.....	.....	.....	3
Not reported	.....	.....	.....	.....	5	4
Total	96	41	6	9	107	54

Further, as shown in Table 39, these young people had gone to work with all degrees of educational preparation as represented by the work offered in the schools. One boy reported only having completed the first grade (this may be erroneous). The others, whose reports seem perfectly clear, had completed grades three to eight inclusive, and 24 boys and 9 girls reported having completed at least one year of a high-school course (one boy stated that he had had a little college work). Four boys and one girl had completed a four years' high-school course. One-half of both the boys and the girls had gone to work with a seventh-grade education or less.

TABLE 39.—*Grades in school completed by employed brothers and sisters.*

Grades completed.	Boys.	Girls.	Total.
1	1		1
3		1	1
4	5	2	7
5	5	3	8
6	19	10	29
7	20	14	34
8	23	13	36
I	8	1	9
II	4	4	8
III	8	3	11
IV	4	1	5
Not reported	10	1	11
Total	107	54	161

Approximately one-half of both the boys and the girls left school at the end of the compulsory educational period or before, as shown in Table 40. Almost all reported that they left school to go to work.

TABLE 40.—*Ages at which employed brothers and sisters left school.*

Ages at leaving school.	Boys.	Girls.	Total.
At 14 years of age or under (end of compulsory period)	52	28	80
Over 14 years of age (six months to five years beyond compulsory period)	50	25	75
Not reported	5	1	6
Total	107	54	161

It is instructive to note what voluntary efforts these boys and girls (the majority of whom had left school as soon as the law permitted them to do so, and with an education represented by the seventh grade or less) have made to continue their education after having gone to work. Table 41 furnishes a summary of these efforts.

TABLE 41.—*Efforts to continue education as reported by employed brothers and sisters.*

Courses taken.	Number reporting evening-school courses.		Number reporting correspondence-school courses.	
	Boys.	Girls.	Boys.	Girls.
Commercial courses	15	3	1	3
Common-school branches		2	3	
Moving-picture machine operators	1			
Engineering			1	
Carpentry			1	
Drafting	1		1	
Teacher's branches				1
Sewing				1
Not specified	16	1	4	
Total	32	6	11	5

NOTE.—56 boys and 30 girls report that they draw books from the public library.

Almost one-half of the boys, but only one-fifth of the girls, reported having done some night-school or correspondence-school work. Unfortunately the character of this is not specified. But as commercial or business courses are specified in the greatest number of cases and as, with the exception of the work of the Y. M. C. A. night school, little opportunity for continuation school work is offered except by the business colleges, it is probable that these unspecified courses are largely of a commercial nature.

One-half of the boys and also of the girls report that they draw books from the public library. A number of others report having done so before dropping out of school.

As shown in Table 42, there has been a good deal of drifting about by employed brothers and sisters. Only 32, or 19.8 per cent, have held one position only, while nearly one-half of the total number have held three or more positions. Two boys report eight different positions each.

TABLE 42.—*Number of positions held by employed brothers and sisters since leaving school.*

Number of positions held.	Boys.	Girls.	Total.
1 position	17	15	32
2 positions	25	14	39
3 positions	28	14	42
4 positions	14	3	17
5 positions	10	.....	10
6 positions	3	1	4
7 positions	1	.....	1
8 positions	2	.....	2
Not reported	7	7	14
Total	107	54	161

One boy honestly confesses that he has never had a steady job, while the records of many others show the same condition. A number of boys report apprenticeships as their first positions, but after the first few weeks, or months at the most, they leave this work and take jobs entirely different in character.

In Table 43 the positions held at the time of making the reports are classified by groups as used by the Census Bureau. The group numbers as used by the bureau are retained and used in Tables 44–48 also. One-half of both the boys and the girls are holding jobs in the manufacturing and mechanical industries. Clerical positions come next. It is instructive to note that while quite a large number have taken commercial and business courses since leaving school the majority are engaged in industrial pursuits and a considerably less number are in clerical positions.

TABLE 43.—*Occupation distribution of employed brothers and sisters.*

Group number	Occupation	Number persons reporting.		
		Boys.	Girls.	Total.
3	Manufacturing and mechanical industries	47	27	74
4	Transportation	5	1	6
5	Trades	16	4	20
7	Professional	5	1	6
8	Domestic and personal	1	7	8
9	Clerical	25	7	32
	Not reported	8	7	15
	Total	107	54	161

Tables 44 to 48, inclusive, were prepared to show in detail the school and work records of these 161 boys and girls who left school to go to work. The numerals under "nature of work" in positions held refer to the Census Bureau groups, e. g., "3" refers to the "manufacturing and mechanical industries" group.

In cases in which more than one position has been held of a different nature in the same group, the letters of the alphabet, *a*, *b*, *c*, etc., are used to signify different *kinds* of work; e. g., "*a*," even if used several times, signifies the same kind of work, although it may be repeated to show a number of different jobs.

In one instance a boy (No. 15 in Table 48) has held eight different jobs during the five years he has been out of school. These jobs are each of a different nature and in five different occupational groups. This boy had completed three years of high-school work. His last and present job, at 20 years of age, was only that of laborer in a powder mill.

This boy seemed to have some ambition, but experienced difficulty in finding himself. A Canadian by birth, he dropped out of the Wilmington high school while a senior. He had pursued, since that time, a correspondence course in "telephone engineering" and a night-school course in Spanish at the Young Men's Christian Association. Also he was taking books from the public library.

TABLE 44.—*Records of boys and girls who have held only one job since leaving school.*

Number.	School history.[1]			Working history.	
	Age when left school.	Grade completed.	Years since leaving school.	Months worked at the job.	Nature of work.[2]
BOY.					
1	15	8	1	12	9, office boy.
2	14	6	.....	.....	3, folder.
3	15	II	½	6	9, office assistant.
4	14	5	5	24	3, apprentice.
5	15	4	1	6	3, heating rivets.
6	14	6	4	48	3, shoemaker.
7	16	8	1	4	9, stenographer.
8	12	5	4	30	3, rivet heater.
9	13	5	3	36	5, clerk and driver.
10	14	7	1	6	5, errand boy.
11	17	H. S.	2	6	5, advertising solicitor.
12	15	8	1	12	3, pattern maker.
13	15	8	1	12	5, serving milk.
14	16	8	3	36	9, shipping clerk.
15	14	5	1	4	5, errand boy in grocery.
16	17	I	3	39	7, drafting.
17	14	6	2	9	3, apprentice.
GIRL.					
1	16	7	1	12	5, saleslady.
2	14	III	3	30	3, packer in bake shop
3	13	6	6	6	3, knitter hosiery.
4	14	6	3	3	3, machinery operator bottle works.
5	14	7	2	6	3, glazier leather works.
6	14	3	6	24	3, skin painter.
7	15	8	1	½	9, cashier.
8	18	II	2	24	3, cigar packer.
9	14	8	6	1½	7, assistant optician.
10	16	7	1	18	8, housework.
11	14	.....	3	24	9, cashier in grocery.
12	15	6	2	1	3, work on hopper—rubber hose.
13	13	.....	2	9	3, operator sewing machine.
14	14	.....	2	16	3, silk weaver.
15	16	II	1	9	4, telephone operator.

[1] All these boys and girls attended the public schools except boy No. 1 and girls 3 and 11, who attended parochial schools, and girl 6, who attended a Russian school.

[2] For occupations indicated by the numerals in this column, see Table 43.

TABLE 45.—*Records of boys and girls who have held two jobs since leaving school.*

Number.	School history.[1]			Working history.			
	Age when left school.	Grade completed.	Years since leaving school.	Months worked at each job.		Nature of work.[2]	
				First.	Second.	First.	Second and present job.
BOY.							
1	16	H. S.	4	9	9	9	9, clerical.
2	14	7	2	3	12	9a	4b, telephone operator.
3	15	II	1	2	6	3a	3b, machinist.
4	15	7	4	3	8	9a	3b, helper, sheet-metal works.
5	14	8	1	4	[illegible]	9	9, clerical.
6	14	H. S.	6	18	24	9a	9b, collector.
7	16	8	4	12	26	9a	5b, salesman.
8	15	6	5	24	30	3a	3b, helper.
9	13	8	2	2	26	9a	3b, heater boy.
10	16	8	4	24	24	9a	7b, draftsman.
11	14	1	5	24	12	9a	9b, runs typewriter.
12	16	8	1	[illegible]	[illegible]	3a	9b, office boy.
13	11	7	6	24	24	9a	4b, telegraph operator.
14	18	III	1	6	6	3a	3b, machine operator.
15	15	1	2	12	18	5a	3b, apprentice.
16	15	III	7	24	30	3a	9b, clerical.
17	15	8	7	48	24	3a	3b, plumber.
18	12	5	4	36	[illegible]	5a	5b, porter.
19	14	8	4	[illegible]	[illegible]	9a	9b, stenographer and clerk.
20	14	7	1	[illegible]	[illegible]	9a	3b, helper, machine shop.
21	17	6	3	24	12	3a	3b, apprentice plumber.
22	15	7	3	[illegible]	[illegible]	3a	9b, office clerk.
23	14	6	3	32	3	3a	3b, pipe-fitter helper.
24	15	11	4	30	12	9a	9b, bookkeeper.
25	14	7	1	4	6	5a	5b, filling orders.
GIRL.							
1	18	1	2	12	12	9a	9b, stenographer.
2	14	7	4	12	36	3a	3b, cigar packer.
3	14	6	5	12	6	3a	3b, inspector talking machines.
4	15	III	1	2	6	3a	3b, work in bleachery.
5	16	7	1	6	1	3a	3b, inspecting bottles.
6	15	8	1	9	[illegible]	8a	8b, helper in laundry.
7	14	7	4	24	6	8a	8b, inspector in laundry.
8	19	IV	2	[illegible]	12	9	9, stenographer.
9	16	8	2	12	6	3a	3b, helper, rubber company.
10	14	6	3	6	3	5	5, saleslady.
11	14	5	4	7	2	8a	3b, quilling in silk mill.
12	14	8	6	24	6	3a	7b, chambermaid.
13	17	11	2	1	1	9a	9b, stenographer.
14	15	7	1	6	1	3a	3b, trimming.

[1] All these boys and girls attended the public schools except girl No. 10, who attended a parochial school.
[2] For occupations indicated by the numerals in these columns, see Table 43; the letters *a* and *b* signify different kinds of work.

TABLE 46.—*Records of boys and girls who have held three jobs since leaving school.*

Number.	School history.[1]			Working history.					
	Age when left school.	Grade completed.	Years since leaving school.	Months worked at each job.			Nature of work.[2]		
				First.	Second.	Third.	First.	Second.	Third and present job.
BOY.									
1	14	5	1	6	4	1	5a	3b	3c, oiling machinery.
2	14	6	5	18	12	.....	5a	5b	3c, machine fixer.
3	16	6	1	½	12	½	3a	3b	3c, pattern maker.
4	14	7	3	7	12	6	9a	9a	9b, shipping clerk.
5	13	8	3	24	1	4	9a	9a	3b, apprentice.
6	13	6	5	18	24	6	9a	3b	3c, making hose.
7	17	III	3	12	12	9	3a	7b	7c, draftsman.
8	17	II	1	½	3	6	3a	9b	7c, reporter.
9	14	4	3	18	9	6	5a	3b	3c, machine operator.
10	14	6	4	27	3	3	3a	5b	5b, clerk in grocery.
11	14	7	3	16	12	8	3a	5b	5c, clerk in grocery.
12	14	7	1	3	4	4	5a	5a	3b, laborer.
13	14	4	3	.....	.....	12	4a	5b	3c, laborer.
14	15	6	1	½	½	1	4a	4a	3b, machine helper.
15	15	8	1	½	3	4	9a	3b	3c, apprentice.
16	13	7	2	2	3	1	9a	9b	9c, mail boy.
17	14	7	2	4	6	6	3a	3b	3c, pressman.
18	13	8	7	48	6	6	5a	5a	5a, selling papers.
19	14	7	4	24	4	6	9a	5b	9c, clerk.
20	15	7	1	8	4	4	7a	8b	7a, drafting.
21	17	4	1	.....	.....	.....	3a	3b	3c, running drill press.
22	15	7	5	24	24	6	3a	3b	3c, plumber's helper.
23	16	7	2	6	8	3	3a	3b	3a, plumber apprentice.
24	13	7	6	36	24	6	3a	3b	3c, assembling.
25	13	5	8	2	36	48	5a	5b	5c, shipping clerk.
26	17	III	1	2	3	3	9a	9b	9c, stenographer.
27	14	5	1	1	3	½	3a	3b	3b, operator machine.
28	16	4	2	12	6	6	5a	4b	4c, telegraph operator.
GIRL.									
1	16	8	2	3	12	27	3a	9b	9c, salesgirl.
2	14	5	4	½	6	1	5a	5a	3b, operating press.
3	14	5	1	6	½	½	3a	3b	3c, folding cloth.
4	15	5	4	2	36	12	3a	3b	3b, cigar maker.
5	14	6	4	15	12	18	8a	3b	3c, glazier.
6	14	5	2	12	6	6	6a	3b	3c, glazier.
7	13	4	7	24	12	6	3a	3a	3b, tobacco factory.
8	14	6	3	11	6	12	3a	3b	5c, clerk.
9	12	6	5	24	4	32	3a	3b	3c, knitter.
10	16	6	1	.....	.....	2	8a	8b	8b, house work.
11	15	7	4	3	24	1	5a	3b	5c, house work.
12	15	8	5	48	12	1	8a	8a	8a, house work.
13	14	7	6	30	12	24	3a	3b	3c, textile worker.
14	16	6	1	2	1	3	8a	8a	8b, house work.

[1] All these boys and girls attended the public schools except boys 9 and 13 and girl 7, who attended parochial schools.

[2] For occupations indicated by the numerals in these columns, see Table 43; the letters *a*, *b*, *c* signify different kinds of work.

TABLE 47.—*Records of boys and girls who have held four jobs since leaving school.*

Number.	School history.[1]			Working history.[2]							
				Months worked at each job.				Nature of work.[2]			
	Age when left school.	Grade completed.	Years since leaving school.	First.	Second.	Third.	Fourth.	First.	Second.	Third.	Fourth and present job.
BOY.											
1	14	II	7	6	2	48	24	4a	9b	3c	3c, compositor.
2	15	6	3	9	27	2	1	4a	3b	3c	3c, iron welding
3	14	8	3	6	6	15	6	3a	3b	3a	3c, helper to blacksmith.
4	14	.....	6	6	30	1	3	3a	3b	3c	3d, powder mill.
5	15	8	3	8	6	15	12	9a	9b	3c	3d, tinsmith.
6	13	6	7	18	15	36	12	3a	5b	5c	9d, agent for newspaper.
7	13	5	2	6	6	3	3	5a	3b	3c	3d, stamping leather.
8	15	7	2	6	(3)	12	6	5a	9b	9c	9d, clerk.
9	14	7	4	12	12	12	12	4a	3b	3c	4d, chauffeur.
10	13	6	2	12	1	6	6	4a	3b	4c	9d, office boy.
11	15	7	1	2	4	6	2	9a	9b	9a	9b, clerk.
12	15	4	1	.....	.....	.....	.....	.....	.....	.....	.....
13	15	III	4	12	12	12	9	9a	9b	9c	9d, bookkeeper.
14	13	6	5	36	12	6	2	5a	5b	8c	4d, chauffeur.
GIRL.											
1	15	7	2	2	6	12	6	3a	8b	3c	3d, glazier.
2	14	8	5	6	24	24	12	5a	5b	5b	3c, dressmaker.
3	14	6	6	15	9	15	.....	9a	9a	9b	9c, bookkeeper.

[1] All these boys and girls attended public schools except boys 3, 4, 7, and 12, and girl No. 1, who attended parochial schools.

[2] For occupations indicated by the numerals in these colums, see Table 43; the letters *a*, *b*, *c*, and *d* indicate different kinds of work.

[3] Four days.

TABLE 48.—*Records of boys and girls who have held more than four jobs since leaving school.*

Number.	School history.[1]			Working history.																
				Months worked at each job.								Nature of work.[2]								
	Age when left school.	Grade completed.	Years since leaving school.	First.	Second.	Third.	Fourth.	Fifth.	Sixth.	Seventh.	Eighth.	First.	Second.	Third.	Fourth.	Fifth.	Sixth.	Seventh.	Eighth.	Present job.
BOY.																				
1.....	15	6	4	27	3	6	4	12	.....	.....	.....	5a	3b	3c	5a	5a	.....	.....	.....	Huckster.
2.....	11	.....	8	24	12	48	6	6	.....	.....	.....	5a	3b	5a	5c	3d	.....	.....	.....	Powder worker.
3.....	15	6	2	3	12	2	6	1	.....	.....	.....	3a	9b	3c	8d	9c	.....	.....	.....	Operator, adding machine.
4.....	14	6	4	6	1	2	18	12	.....	.....	.....	9a	3b	3c	9d	9c	.....	.....	.....	Delivery clerk.
5.....	14	7	5	12	.....	.....	12	36	.....	.....	.....	5a	3b	5c	3d	5c	.....	.....	.....	Milk business.
6.....	15	6	4	6	9	9	1	1	.....	.....	.....	3a	3b	1c	3d	3c	.....	.....	.....	Machinist apprentice.
7.....	15	7	4	18	6	6	3	9	.....	.....	.....	8	8	8	8	8	.....	.....	.....	Barber.
8.....	13	6	4	12	21	4	4	1	.....	.....	.....	5a	3b	7c	3d	3e	.....	.....	.....	Box tester.
9.....	13	6	3	18	6	2	6	3	.....	.....	.....	5a	3b	5c	5d	5e	.....	.....	.....	In meat shop.
10.....	14	6	5	3	6	12	6	1	.....	.....	.....	5a	3b	7c	3d	3d	.....	.....	.....	Plumber apprentice.
11.....	16	7	4	8	9	9	4	15	9	.....	.....	4a	9b	9c	9d	9e	9d	.....	.....	Stenographer.
12.....	14	4	5	36	6	1	6	4	1	.....	.....	3a	5b	3c	5d	3e	3f	.....	.....	Machine helper.
13.....	12	6	8	24	12	36	6	6	12	.....	.....	9a	9a	3b	3c	3d	3c	.....	.....	Weighing powder.
14.....	13	7	4	9	15	6	6	3	12	6	.....	9a	9b	3c	5d	3e	5f	3g	.....	Electrical apprentice.
15.....	15	11	5	1	4	6	18	2	9	4	2	7a	4b	9c	9d	5e	9f	3g	3h	Laborer, powder company.
16.....	13	1?	3	.....	.....	.....	.....	.....	.....	.....	.....	1a	1a	4b	4b	5c	4b	9d	5c	Serving papers.
GIRL.																				
1.....	14	4	6	24	15	.....	12	3	6	.....	.....	8a	3b	3c	8d	3e	3e	.....	.....	Sizer, leather works.

[1] All these boys attended the public schools; the one girl attended a parochial school.
[2] For occupations in these columns, see Table 43; the letters *a*, *b*, *c*, etc., indicate different kinds of work.

SUMMARY OF FINDINGS.

1. Working permits of two general forms, the one for working outside of school hours, the second for working during school hours, are provided by the State law. With several notable weaknesses, these provisions of the law are reasonably satisfactory. The chief weakness in them is in the lack of sufficient means for their enforcement.

2. The granting of working permits being in the hands of the public school officials, little effort seems to be made in enforcing the provision in respect to colored children and to pupils who attend parochial schools. Facilities are not adequate for doing this. Full and sufficient reasons for going to work do not seem to be required of applicants for working permits. Notable failure to require children either to be in normal physical condition before permits are granted, although the law requires this, or to have made normal school progress is clearly shown. It is the poorly developed child physically and the

one who is over age in his school work that makes application for these permits.

3. The schools are not holding the boys and girls as they should. As soon as the law permits them to go to work they leave school, not because of urgent necessity in the majority of cases, but because they were behind in their studies and discouraged and preferred to go to work rather than to continue in work that promised no direct help in fitting them for earning a living.

4. The tables show that the employment-certificate children are not, on the whole, efficient in their "jobs" or willing to learn, as they change from job to job for a small increase in wage or for the mere novelty of a change. It would be better if the schools could give more practical work and hold them for such training as would fit them for positions of more promise for the future.

5. There is apparent in these frequent changes of "jobs" a lamentable lack of moral obligation on the part of the children. These conditions should be investigated further and, if possible, means found in the schools for remedying them.

CHAPTER V.

EDUCATIONAL NEEDS OF WORKERS, AND PRESENT EDUCATIONAL OPPORTUNITIES.

I. NEEDS EXPRESSED BY THE WORKERS.

From the individual schedules prepared by workers in a number of different occupations, suggestions were obtained as to what the schools might do to help them in their work. These suggestions are summarized in Tables 49, 50, and 51.

TABLE 49.—*Summary of suggestions of skilled workmen as to what the public schools should teach to help the workers in their occupations.*

Subjects suggested.	Number of workers offering suggestions.								
	Painters.	Linemen.	Plumbers.	Electricians.	Plasterers.	Machinists.	Carpenters.	Bricklayers.	Total.
Mathematics	2	1	1		1	3	2	2	12
Drawing	2					4	1	1	8
Reading and English	1	1	1			4			7
Blue-print reading	2			1			1		4
Estimating	1			1				1	3
Spelling	1	1	1						3
Electricity				2					2
Study of industries					2				2
Chemistry	1								1
Writing	1								1
Study of colors	1								1
Cleanliness	1								1
Courtesy	1								1
Rapid calculation	1								1
Present school system sufficient	1								1

TABLE 50.—*Summary of suggestions of the workers as to what a part-time school could teach a beginner in the study of trades.*

Subjects suggested.	Number of workers offering suggestions.					
	Painters.	Bricklayers.	Carpenters.	Electricians.	Machinists.	Total.
Drafting, general	1	1	1		3	6
Mathematics	2	1			3	6
Estimating	1	1		1	1	4
Chemistry	2					2
Drawing, architectural		2				2
How to superintend, etc.	1			1		2
Reading and English	1				1	2
Blue-print reading	1					1
Courtesy	1					1
Construction		1				1
Drawing, machine					1	1
Generators, operation of			1			1
Mixing colors	1					1
Electricity				1		1
Study of plans	1					1
Spelling	1					1

TABLE 51.—*Summary of suggestions of the workers as to evening-school courses for employed workers.*

Subjects suggested.	Number of workers offering suggestions.							
	Painters.	Plumbers.	Electricians.	Lineman.	Carpenters.	Bricklayers.	Machinists.	Total.
Drawing	2		1		2	1	3	6
Estimating	2		1		1	1		5
English and reading					1		2	3
Arithmetic							2	2
Mathematics		1			1			2
Blue-print reading	1							1
Common-school education			1					1
Chemistry							1	1
Shopwork in industries				1				1
Engineering (mechanical)						1		1
Engines (steam)							1	1
Monogram lettering	1							1
Mixing colors	1							1
Sanitation	1							1
Steel square, study of					1			1
Strength of material					1			1
Styles of brick work						1		1
Measuring	1							1

These suggestions refer to three classes of schools, (*a*) courses to be offered in the regular schools to assist boys and girls to choose and to prepare for chosen occupations before they leave school; (*b*) courses in part-time schools to help apprentices while they are learning their trades; (*c*) courses in evening schools to help employed workers.

These suggestions are especially valuable as representing the real needs felt by the workers. The suggestions are classified according to the kinds of courses needed and the trades of the men making the suggestions. More drill in the common branches is desired for the boy before he leaves school and after he begins working at his trade both as apprentice and journeyman. Drafting and blueprint and plan reading are demanded by a large number of the workers. Many other courses are suggested. Sanitation, cleanliness, and courtesy are suggested by several. A study of the industries and practical shopwork along a number of lines are suggested.

Nearly one-half of these same workers report efforts to continue their education since going to work. Night school, business college, and correspondence school courses have been taken by them. More than one-half of them left school by the time they were 15 years of age or before. The younger workers, whose reports are recorded in chapter 4, show efforts to continue their education along similar lines.

The groups of workers representing the metal working, building and printing trades examined the findings of the Richmond (Va.) survey as they referred to the educational needs of the workmen in the groups of trades represented. These men indorsed the findings of the Richmond report, the representatives of the building trades placing even stronger emphasis on the importance of a knowledge

of drawing and blueprint reading in these trades. For further details the reader is referred to Bulletin 162, United States Bureau of Labor Statistics.

II. EDUCATIONAL NEEDS AS EXPRESSED BY EMPLOYERS.

The suggestions of employers as to the educational needs of their employees are summarized in tables 52, 53, and 54. The employers reporting consider the greatest need to be a thorough grounding in the common-school branches before boys and girls are allowed to leave school. The need of more thorough work in English and arithmetic is especially emphasized. Drawing and manual training of a practical kind are considered important.

TABLE 52.—*Summary of suggestions of employers as to what the public schools should teach to help prospective workers.*

Subjects suggested.	Number of employers reporting.						
	Metal-working industries.	Building trades.	Printing trades.	Leather industries.	Textile industries.	Transportation companies.	Total.
Number of employers reporting.	15	8	2	1	1	1	28
Common-school branches	9	3	2	1	1	1	17
Mathematics	5	4	.....	.....	.....	1	10
Drawing	4	3	.....	.....	.....	1	8
Manual training	3	1	.....	.....	.....	.....	4
Study of industries	1	1	.....	.....	.....	.....	2
Mechanics	1	1	.....	.....	.....	.....	2
Foundry practice	1	.....	.....	.....	.....	.....	1
Blueprint reading	.....	1	.....	.....	.....	.....	1
Physics	.....	1	.....	.....	.....	.....	1
Punctuation	.....	.....	1	.....	.....	.....	1
Chemistry	.....	.....	.....	.....	1	.....	1

TABLE 53.—*Summary of suggestions of employers as to what an apprentice could study to become more efficient.*

Subjects suggested.	Number of employers reporting.						
	Metal-working industries.	Building trades.	Printing trades.	Leather industries.	Textile industries.	Transportation companies.	Total.
Number of employers reporting.	12	5	2	1	1	1	22
Mathematics	4	2	.....	.....	.....	1	7
Drawing	5	1	.....	.....	.....	1	7
Common branches (review of)	6	1	.....	1	1	.....	7
English	.....	.....	1	1	.....	1	3
Study of industries	1	2	.....	.....	.....	.....	3
Study of materials	1	2	.....	.....	.....	.....	3
Spelling	.....	1	1	.....	.....	.....	2
Chemistry	.....	.....	.....	.....	.....	.....	1
Advertising	.....	.....	1	.....	.....	.....	1
Physics	.....	1	.....	.....	.....	.....	1
Mechanics	1	.....	.....	.....	.....	.....	1
Economics (practical)	1	.....	.....	.....	.....	.....	1

TABLE 54.—*Summary of suggestions of employers as to evening school courses for employed workers.*

Subjects suggested.	Number of employers reporting.					
	Metal-working industries.	Printing trades.	Leather industries.	Textile industries.	Transportation companies.	Total.
Number of employers reporting	12	2	1	1	1	17
Drafting	5				1	6
Mathematics	4			1	1	6
Trade efficiency	4					4
English	1	1	1		1	4
Value of time	2	1				3
General shop practice	2					2
Common-school branches			1	1		2
Study of industries	1					1
Mechanics	1					1
Color schemes		1				1
Advertising		1				1
Chemistry				1		1

The need for part-time education is expressed by almost all of the manufacturers who reported. They suggest for their apprentices courses similar to those recommended for prospective workers. Sufficient knowledge of the common branches is often lacking. Every manufacturer reported that he preferred an apprentice who had had some high-school work. A large majority of these men, especially those representing the metal-working industries, expressed themselves as in favor of cooperative courses, their plants working with the high school.

As to the needs of the journeyman workers, employers favored instruction which will give them a better appreciation of their work, the value of time, and so on. Further instruction in drawing and mathematics was advocated also.

III. PRESENT PROVISIONS FOR INDUSTRIAL EDUCATION.

1. IN THE SCHOOLS.

Public schools.—Under the titles of free-hand and mechanical drawing, domestic art and science, and manual training, considerable work is being done in the Wilmington public schools.

In October, 1889, manual training was introduced into the high school. This, with drawing, both free-hand and mechanical, and domestic science, are required of all high-school pupils in their first and second years, as noted in the high-school courses outlined earlier in this report.[1]

The free-hand drawing and sewing courses are well organized in the grades in both primary and grammar schools. Comparatively little has been done in manual training in the grades.

Table 55 gives the general arrangement as to time allotment and subject in the different grades of these courses.

[1] See Chapter II, p. 22.

TABLE 55.—*General arrangement of the industrial arts and household arts courses in the Wilmington public schools.*

Grades.	Time per week.	Free-hand drawing.	Time per week.	Mechanical drawing.	Time per week.	Industrial arts.	Time per week.	Household arts.
I	Three 20-minute periods.	*Boys and Girls.* General art work.						
II	Three 20-minute periods.	*Boys and Girls.* General art work.						
III	Three 20-minute periods.	*Boys and Girls.* General art work.						
IV	Two 30-minute periods.	*Boys and Girls.* General art work.			One 60-minute period.	Cardboard.	One 60-minute period.	Sewing.
V	Two 30-minute periods.	*Boys and Girls.* General art work.			One 60-minute period.	Cardboard.	One 60-minute period.	Sewing.
VI	Two 30-minute periods.	*Girls.* General art work.	Two 30-minute periods.	*Boys.* Drawing of rectangular solids.	One 60-minute period.	Simple woodwork.	One 60-minute period.	Sewing.
VII	Two 45-minute periods.	*Girls.* General art work.	Two 45-minute periods.	*Boys.* Drawings of simple objects.	One 60-minute period.	Bench woodwork.	One 60-minute period.	Sewing.
VIII	Two 45-minute periods.	*Girls.* General art work.	Two 45-minute periods.	*Boys.* Drawings of simple objects.	One 60-minute period, 8B; 90-minute period, 8A.	Bench woodwork.	One 60-minute period, 8B; 90-minute period, 8A.	Sewing. *Girls.*
I	One 90-minute period per week.	*Girls.* General drawing, design, and a little crafts work in leather and metal.	One 90-minute period per week.	*Boys.* Use of instrument; lettering; geometry problems; projections.	Two 90-minute periods per week.	*Boys.* First semester, joinery, three-fourths time; turning, one-fourth time: second semester, vise and sheet metal work.	Two 90-minute periods per week.	Cookery.
II		*Girls.* General drawing, design, and a little crafts work in leather and metal.	One 90-minute period per week.	*Boys.* Working drawings; projections; architectural drawing.	Two 90-minute periods per week.	*Boys.* First semester, pattern making, cabinet making; second semester, machine-tool work.	Two 90-minute periods per week.	*Girls.* Cookery.

TABLE 56.—*Teaching and supervision of industrial arts and household arts courses—white schools.*

Subjects.	Grades.	Teacher.	Supervisor.
Freehand drawing and general work.	1 to 5 (primary school).	Regular grade teachers (women).	Art supervisor (woman)
	6 to 8 (grammar school).	Special art teacher (woman in each of the grammar schools).	Art supervisor
	High school, first and second years.	Taught by art supervisor	Do.
Mechanical drawing.	6 to 8	In two schools by art teacher. In one school by teacher of industrial arts (woman). In one school by teacher of industrial arts (man).	A little supervision given by high-school teacher of mechanical drawing.
	High school, first and second years.	Mechanical drawing teacher (one man).	
Industrial arts	4 and 5	Regular grade teachers	A little supervision given by art supervisor.
	6 to 8	In two schools art and construction taught by same teacher (one woman in each). In two schools mechanical drawing and construction taught by same teacher (one woman in one school; one man in one school).	A little supervision given by high-school teacher of woodworking. (No real supervision in either grades or high school.)
	I, II	Woodworking courses by one man. Metal-working courses by one man.	
Household arts	4 and 5	Regular grade teachers	Sewing supervisor.
	6 to 8	Special teachers of sewing (one woman) in each of the four schools.	Do.
	I, II	Special teacher of cookery (one woman).	

In Table 56 an outline of the teaching facilities is shown. Previous to the school year 1915–16 the school system had a supervisor of drawing and manual training combined. During 1916–17 there was a separate drawing supervisor but no regular manual-training supervisor.

In the colored schools the work is arranged very much as for the white schools. Mechanical drawing begins in the eighth grade. Woodworking begins in the sixth year with simple problems and continues through the fourth year of the high school, concluding with furniture construction, wood turning, and pattern making. Sewing is given to upper-grade and high-school girls, and cookery to high-school girls.

The girls of the teachers' training school are given instruction throughout their two-year course in drawing, sewing, and simple handwork. The courses are taught by the art and sewing supervisors.

The data for this part of the report were obtained from conferences with the superintendent of schools, supervisors and teachers, visits to the several schools and classes, and detailed study of courses of study, outlines and samples of work submitted by supervisors and teachers.

In 1914 the board of education published a very complete and well prepared bulletin outlining in considerable detail the courses in drawing, both freehand and mechanical, and manual training.

THE ELEMENTARY SCHOOLS.

The courses in freehand drawing.

The work in freehand drawing is probably best explained by several direct quotations from the bulletin mentioned. The course is outlined in detail by the supervisor for the use of the teachers. The work for the first week in September for the first grade is as follows:

1. Practice drawing straight lines in various positions, also squares, oblongs, triangles, etc. Associate objects of interest with these lines. Aim: To develop free movement, observation. Materials: Manila drawing paper, 6 by 9 inches, crayola or pencil.

2. Cut from magazines, catalogues, and advertisements all straight-line objects. Aim: To develop observation of outline, motor forces. Material: Any available material, scissors.

3. Draw at the blackboard straight lines and plane figures in various positions. Children to work with the teacher. Aim: Free movement. Material: Dustless crayon to be used at all blackboard lessons.

4. Free cutting from plane figures, as the square, the oblong, the triangle; children to work from large mounted figures which are to be placed at the front of the room. Attempt one straight-line object. Aim: To memorize shapes. Material: Tinted folding or construction paper.

5. Paste the figures cut at the last lesson on a strip of construction paper of a suitable color to form a border. Aim: Harmony of color, neatness. Material: Figures, construction paper, paste.

At the end of the first year the following results should be apparent:

1. Ability to name and recognize the six standard colors.
2. Ability to represent straight and curved lines in various positions, as standing, lying down, leaning.
3. Ability to represent general forms of objects by drawings and cutting.
4. Knowledge of the use of straight edge and 1-inch measurement.
5. Ability to trace, cut, and paste neatly.
6. Familiarity with simple nature studies, trees, leaves, flowers, etc.
7. Ability to understand such terms as right, left, upper, lower, edge, corner, straight, curved, center.
8. Ability to construct the simple objects designed for this grade through teacher's directions.

The work for each grade is outlined in a similar manner. At the end of the sixth year the following results are expected:

1. Ability to express light and shade through pencil, painting, showing kind of surfaces, solidity, etc.
2. Familiarity with all tints and shades made from the standard colors.
3. Ability to render nature studies, simple still-life groups, flat and graded washes with the brush.
4. Some knowledge of good decoration. Proper framing and hanging of pictures.
5. Familiarity with all terms used in "results of the fifth year," and, in addition, a knowledge of the simplest principles of perspective.

A general outline in drawing and handwork for the seventh and eighth grades includes the following:

1. Nature study: Various mediums, outlines, light and shade, color. Aim: Close observation of details, good technique.
2. Object drawing, various mediums.
3. Still life. Aim: True proportion, light and shade, color.
4. Map drawing: Pencil and water color. Aim: To correlate with history and geography.
5. Perspective studies: Elementary principles. Aim: To acquire a knowledge of the convergence of lines.
6. Color harmony: Its application to interior decoration, wearing apparel. Aim: To develop good taste.
7. Home work: Original problems based on decoration. Outdoor sketching.
8. Study of pictures and frames: Lessons in hanging and arrangement. Fitness of certain objects to given spaces.
9. Elementary bookbinding: Simple notebook problems. Aim: Accuracy, neatness.
10. Elementary design: Constructive and applied units from conventionalized nature studies; stencil construction; stencil application in various objects of use.

At the end of the seventh and eighth years the following results should be apparent:

1. Ability to draw common objects in perspective. Single objects or groups.
2. Power to represent solidity of objects by expressing light and shade.
3. A thorough knowledge of the mixing of all colors previously studied. Ability to represent various washes.
4. Use of the ¼-inch measurement.
5. Familiarity with all type solids. Ability to draw these from memory or from the objects themselves.
6. Power to appreciate the general laws of good taste and a regard for the fitness of things.
7. Ability to express in careful technic various nature forms, showing close observation of growth and structure.
8. Ability to construct simple products of use.

The entire work of these grades is closely connected with the high-school courses.

The outlines given above illustrate the nature of the freehand-drawing work. There are many admirable qualities in the course, but on the whole it seems too formal. It is not sufficiently related to the life and experiences of the children. Considerable correlation with holidays, special days, and seasons is introduced, which is appropriate. Some good suggestions as to correlation with other subjects of the curriculum are made. Attention is appropriately called to the framing of pictures, division of wall spaces, etc. More material of this nature, as well as the relation of color to dress, home decorations, etc., could be introduced appropriately; also more correlation with the sewing and manual training. On the whole it would seem that too much is expected of the children in the time at their disposal and according to their age and ability.

Course in mechanical drawing.

Sixth grade.

The subject is introduced at this juncture in order that the boys of the higher grades and of the high schools may be able better to interpret advanced problems. The plates contain only the simplest working drawings and endeavor to acquaint the pupils with the two important views of any mechanical drawing, namely, the plan and the elevation. The various type solids are used as a basis for the more practical problems. Thorough drill on the use of the drawing board, T-square, triangles, and the compass is most important, as well as constant practice in freehand lettering. Twenty-four plates are designed for use in each of the grammar grades, and teachers will be supplied with a full set of 72 blue prints.

Series 1.

Plate I. Freehand lettering.
II. Conventional lines and their uses.
III. Cube.
IV. Square prism.
V. Equilateral triangular prism.
VI. Square pyramid—elevation showing one face.
VII. Square pyramid—elevation showing two faces.
VIII. Cylinder.
IX. Cone.
X. Hexagonal prism.
XI. Nail box.
XII. Geometric problems.

Series 2.

Plate I. Square plinth.
II. Square washer. Round hole.
III. Circular plinth.
IV. Circular washer. Square hole.
V. Rectangular prism.
VI. Section of a brick chimney.
VII. Cement vat.
VIII. Wrought-iron brace.
IX. Water-pipe section.
X. Circular lamp shade.
XI. Standard or pedestal.
XII. L-shaped block—bored.

Seventh grade.

Series 3.

Plate I. Triangular plinth.
II Triangular brass tray.
III. Hexagonal pyramid.
IV. Hexagonal lamp shade.
V. Footstool.
VI. Mail box.
VII. Shelf.
VIII. Stone steps.
IX. Octagonal plinth.
X. Octagonal nut.
XI. Teapot stand.
XII. Bookrack.

Series 4.

Plate I. Window plant box.
II. Candlestick.
III. Hourglass.
IV. Pail.
V. Hemisphere.
VI. Bowl.
VII. Drawing board.
VIII. Table.
IX. T-square.
X. Triangle.
XI. Tool box.
XII. Cup and saucer.

Eighth grade.

Series 5.

Plate I. Square stand.
II. Piano bench.
III. Bookshelves.
IV. Desk.
V. Kitchen table.
VI. Taboret.
VII. Ice chest.
VIII. Picture frame.
IX. Iron ring.
X. Inkstand.
XI. Sleeve board.
XII. Toothbrush holder.

Eighth grade—Continued.

Series 6.

Plate I. Whisk-broom case.
II. Stovepipe elbow.
III. Bracket.
IV. Stone plant box.
V. Plan of schoolroom floor.
VI. Octagonal pyramid.
VII. Octagonal lamp shade.
VIII. Jar with stopper.
IX. Car wheel.
X. Car-rail section.
XI. Potato masher.
XII. Pulley.

No inking is done in the grades. The only equipment is an "eagle" compass and a foot rule.

Like many other courses in mechanical drawing this course is largely a copying of blue prints, with very little apparent connection with the construction work of the shops. As a formal course, logically developed, the course is much better than the average. But with only "an eagle compass and a foot rule," it can not be carried out successfully.

"Freehand lettering, conventional lines, and geometrical problems" mean very little to the boys when presented in a formal way. These things will have meaning only when taken up as required in the execution of drawings.

The planning and making of constructive designs for the articles to be made in manual training would give more real meaning to this course. Some drawings might profitably be from objects instead of all from blue prints. The "plan of the schoolroom" is a good problem and could be supplemented with drawings of the school building, yard, etc.

Courses in manual training.

In the fourth and fifth years cardboard work is carried on. If articles in these courses are designed by the pupils, working plans made, and care is taken to select projects for which the pupils have a real need and in which there is opportunity for some decoration in the drawing classes, this work may be made quite profitable. It represents an important industry and one of some local importance.

Two of the grammar schools are fairly well equipped for woodworking, although the teaching of this subject below the high school has not been carried far. A list of the problems in woodworking prepared for use in two of the grammar schools is given below. The articles are constructed from blue prints, and all boys are expected

to make the same articles. They are the conventional woodworking models as found in most schools.

As suggested in connection with the cardboard work, if articles really needed by the boys were planned and designed by them, and constructed from their own dimensioned drawings, this work will prove more interesting and much more profitable.

Problems in woodwork for grammar schools No. 24 and No. 28.

1. Use of rule, square, and knife. 2. Sawing to line and paring. 3. Sandpaper block. 4. Spool holder. 5. Tenpot stand. 6. Keyboard. 7. Sleeve board. 8. Bench hook. 9. Shelf. 10. Whisk-broom holder. 11. Knife box. 12. Bird house. 13. Glove box.

Courses in sewing.

No sewing is given in the white high school, but it is given in the colored high school. However, in the white graded schools it is given in grades four to eight, inclusive. The supervisor of sewing directs all of the work in the schools, but teaches the classes in the teacher-training school only. Sewing is given in both years of this course.

Formerly there were eight special teachers of sewing. Now only two special teachers of sewing, besides the supervisor, are employed. The rest of the teaching is done by the regular grade teachers, who have been taught this special work by the sewing supervisor. The supervisor meets the grade teachers in groups composed of all of the teachers of the same grades in the city after school hours about twice each semester, and gives them instruction; the teachers working out in miniature the problems which they are to present to their pupils.

The supervisor also has the training-school girls make small-size models of the articles to be made by the pupils. These training-school students are well grounded in the principles of sewing, but unfortunately for this work they usually start to teach in the city school system in the lower primary grades where sewing is not taught. The upper-grade teachers who teach the sewing, as a rule, come from other cities and have not had instruction in the subject. None of those who are teaching sewing in the schools now have had any special instruction in the subject except that given by the present sewing supervisor, who has been in charge of this work for several years.

In the grade schools the usual method of procedure is to put two grades together—one teacher taking all of the girls of the two grades in sewing, and the other teacher the boys in some form of construction work.

The work done by the grade girls is practical in its nature. In each grade, in the first few lessons, three or four practice stitches are made; then these are applied in the making of full-sized garments.

The sixth grade girls make uniforms to wear in the high-school cookery. These seem to fit well into the course at this time, but it would seem more appropriate to make them nearer the time when they will be used.

The girls in the sewing classes seemed interested, and on the whole were doing good work. More correlation with the work in drawing in making of designs would increase the value of the instruction. In some instances not enough attention seemed to be given to having the girls design articles to their own measures or those for which they had a real need. The work in sewing was of better quality and of a more practical nature than is often found in a city school system.

The task of training the teachers for all the work in the subject carried on in the entire school system in addition to other responsibilities is too great for one supervisor. More specially trained teachers should be employed, particularly in each of the large grammar schools.

Some work with textiles, weaving, and other processes, should be introduced to relieve the monotony of five full years of regular sewing. Cookery should be introduced in the eighth grade at the latest.

HIGH SCHOOLS.

Courses in drawing and design.

Although the bulletin referred to above outlines four years of high-school work in "design and handicraft," it appears that only the first two years of the course are being given.

The outline of the work of these two years is as follows:

FIRST YEAR.

Object drawing: Pencil outline, accenting; pencil painting, light and shade; charcoal and chalk; charcoal and water color.

Figure drawing: Pencil outline, accenting; pencil painting, light and shade; silhouette studies.

Nature study: Pencil outline and mass drawing; brush work, neutral values; water-color rendering.

Outdoor sketching in pencil.

Composition.

Elementary principles of design.

Color harmony.

Elementary principles of perspective.

History of painting—illustrated notebooks.

Interior decoration of home and school—illustrated notebooks.

SECOND YEAR.

Nature study: Pencil, ink, color.

Design: Constructive and applied.

Stenciling; Stencil making, application on fabrics.

Art needlework: Suggestions—table runners, doilies, curtains, pillow covers.
Elementary bookbinding: Construction, using vellum. Suggestions—portfolios, notebooks, stationery cases.
History of painting—illustrated notebooks.
Interior decoration of home and school—illustrated notebooks. Personal adornment.

Similar work is outlined for the third and fourth years of the high-school course, but is not now offered.

The course is a strong one, and evidences of considerable interest on the part of the girls in the high school were apparent. The art work is correlated with the work in home economics. When the sewing courses are introduced in the high school (as now anticipated), further opportunity for correlation will be afforded.

Courses in mechanical drawing.

Although the bulletin states that "problems in this department are arranged in conjunction with the shopwork," little evidence of correlation was found in practice. The bulletin further states that "the aim of the work is to correlate the drafting with local industries. Research is encouraged along this line, and the department of English assists by assigning themes in the various processes of manufacturing."

A brief outline of the two years' course is as follows:

FIRST YEAR.

Use of instruments: Straight and curved lines, circles, concentrics, angles, etc.
Lettering: Freehand, designing, and spacing of titles, figures.
Geometric problems: Construction of various figures.
Projections: Simple objects based on the type solids, names and positions of views.

SECOND YEAR.

Working drawings: Application of the principles studied the first year, constructive work in detail and assembled shop projects, work relating to local industries.
Orthographic projection: Relation of planes, frustrums, use of lines and planes.
Architecture: House framing, details of construction, floor plans, elevations, simple perspectives, interiors, bungalow plans (original).

Some exceptionally good work is being done in this department. The teacher is a practical draftsman, a practicing architect, and has supervised the construction of buildings. One and one-half hours per week for two years is too short a time in which to develop the course as it has been planned. The problems for the woodworking and metal working courses could probably be designed and the working drawings made here.

The substitution of some of this correlated shop drawing in place of the more formal work of the first part of the drawing course, bringing in the use of instruments, lettering, and geometric problems only as needed would add to the educative value of the course. Likewise the theory of projection should follow rather than precede the application of these principles, and in architecture the course should start with the drawing of home plans and elevations, allowing the details of construction to follow as needed in completing the plans.

Courses in home economics.

All girls in the high school are required to devote two 90-minute periods each week to work in this department during the first and second years. It is seldom that work so well organized and so practical in character is found in a high-school course. The cookery and other features of the course are closely correlated with the cafeteria luncheon service of the school. The woman in charge of the luncheon service and the cookery teacher work together in planning the activities of each day, so that the products of the cooking classes are used as a part of the luncheon menu. The supplies for the cooking classes are furnished out of the receipts of the luncheon service. Each day the high-school girls provide one or more dishes for this service. Therefore, if the cookery lesson is on bread making, the girls can make bread in large quantities and loaves of regulation size. In this way the work is more practical than that frequently found in cookery courses, and is very economical for the school system.

When the new high-school building is completed, opportunity for further expansion of this department will be possible. As brought out in Table 12, almost all of the girls like the work.

Shop courses in wood and metal.

As already indicated, shopwork in the high school is of long standing. Bench woodworking was introduced in 1889, machine-shop work two years later, and forging three or four years later.

Five or six years ago the forge equipment was sold, and this part of the shopwork was discontinued. This equipment was thoroughly up-to-date in every respect, consisting of 24 down-draft forges and other equipment in proportion. There was a good room for the purpose, which is now used by the carpenter and painter for repair work. The teacher who had charge of the forging was old and hard of hearing, and he had considerable trouble with the boys. It is extremely unfortunate that this work was done away with, as it represents an industry of great importance in Wilmington and is a valuable manual-training subject.

The three shops were well equipped when installed, but have had very little additional equipment in 20 years. But this does not mean that the two shops now in use (woodworking and machine shops) are not in good condition. They are more completely equipped, and with better tools and machinery than many more modern shops. In almost every respect these shops are fully equipped for excellent work in their respective lines.

Formerly each boy had 90 minutes per day for manual training, but as the size of the school increased this time was cut down, until now each receives instruction but two double periods per week.

There is no correlation at present between the shop courses and the courses in design and mechanical drawing, although all instructors concerned expressed a wish that there might be such correlation. The time element was given as one reason why correlation is not attempted.

All shopwork is based on blue prints provided by the instructors, and all boys seemed to be doing the same work to a large degree. Although the courses as printed include "talks on the various kinds of wood, lumbering, iron and steel, processes involved in the manufacture of metals, shop systems, and local industries," the instructors reported that there is little or no time for these things. The courses are "shopwork" only. The interest of the boys in their work was good, and the technic and the products turned out were as a rule good. Some exceptionally good pieces of work were seen.

Some boys were repeating courses, and naturally were little interested in what they were doing. An instructor is authority for the statement that promotion in the high school is by years and not by subjects; consequently, if a boy fails in some academic subject, he is required to take his manual-training work over also, even if he had done this work creditably. If this administrative procedure must continue, it should at least be possible to provide new problems for boys repeating a course.

The boys pay for all material used in projects which they take home with them. Little of the purely exercise work is taken, but most of the articles of real value are.

In the construction of some projects little is left for the boy to do but to follow the directions given. Not much thought is required. For example, in lathe lesson No. 1, which is turning a taper piece, the boy is given a full-size blue print of the piece both in the cylinder form and as it appears when finished. Also he is given the following printed notes:

First. Make piece required length, facing ends straight and smooth, using side tool.

Second. Turn to diameter given in upper view of drawing, using diamond-point tool.

Third. Mark on surface for chambered section, and turn to given diameter plus a finishing cut. With parting-tool make chambered part required length, leaving enough metal for fillets. Finish ½ inch part, fillets, and ¾ inch parts. Round over end, using the graver, and file finished parts.

Fourth. Find difference between large and small diameter of tapering part, and move tail-stock center toward front of lathe, one-half of this difference, for each number of times the length of tapering part is contained in length of piece. Turn, finish, and file to size.

In both shops the instructors are men of maturity who have had considerable practical experience in their respective trades. Thus they are exceptionally well adapted to continuing their work along more vocational lines.

The courses as outlined are as follows:

WOODWORK.

A. Joinery: Halved corner, through lap, miter joint, open mortise-and-tenon, butt mortise-and-tenon, dovetail, drawer dovetail, application of all joints in construction work. (It is impossible for each boy to make application of every joint. As a rule each boy constructs only one piece of work, making application of only one or two of these joints.)

B. Turning: Cylinder, step cylinder, grooved cylinder, bead and fillets, stocking darner, rolling pin, potato masher, mallet, gavel, candlestick, cup. (As a rule only one or two practice exercises are made. Some excellent practical projects are worked out.)

C. Pattern making: Washer, wrench, pipe connection, engine crank, stuffing-box gland, brass nut, pipe-connection elbow, eccentric-strap. (Some of the more capable boys make more difficult problems, as patterns for small engine, etc.).

D. Cabinet making: Taboret, bookcase, table, desk, chair. (One or two articles made by each boy.)

METAL WORK.

A. Vise and sheet-metal work: Cutting, filing, straight and curved-line figures; riveting, cake lifter; application of cutting and filing; garden trowel; cast-iron paper file base, steel wire stem; drilling, draw filing, polishing, steel hammer head; punching, garden weeder; tap and die work, spool holder; chipping and filing, cast-iron hammer head, paper weight; brass paper weight.

B. Machine-tool work: Wrought iron cylinder; taper cylinder, chambered with fillet; cylinder chambered to gauge and cut to fit reamed hole; right and left hand threading, cast iron, United States standard; cast-iron lathe carriage handle finished bright; hexagonal bolt and nut, finished all over; double taper, with beads and fillets; arbor with nut, square threads; crosshead, cast iron, finished bright; mandrel. (Not all of this course can be completed in the time available.)

CONTINUATION SCHOOLS.

There is no continuation school work done in the city.

PUBLIC EVENING SCHOOLS.

The only evening courses offered by the public schools are those already referred to, including classes in the review of the common

school branches, and the Americanization school for foreigners, recently established. None of these courses is industrial in character, though the students are largely industrial workers.

PRIVATE SCHOOLS.

1. In some of the parochial schools some attention is given to free-hand and mechanical drawing.

In the prospectus of the "Salesianum," a private preparatory school for boys under the direction of the Catholic Church, free-hand drawing is given as one of the subjects taught in the "preparatory class," and free-hand and mechanical drawing, architecture, industrial drawing, and land measuring are mentioned as among the subjects required during the four years of the "commercial division" of the regular course.

In a large Friends' school giving instruction throughout all of the grades and a four-year high school, free-hand and mechanical drawing are given considerable attention. The primary school studies "include drawing, with work in form and color." The work in drawing of the grammar grades is described in the catalogue of the school as being "under the care of a skilled instructor of long experience, who has entire charge of the drawing throughout the school." The aim of the free-hand work is—

to develop an appreciation of art, and to cultivate the taste for beauty in daily life and surroundings. The idea is to help the pupil at the very outset to originate a beautiful arrangement and to see the beauty of line and color which should exist in everything that is made by hand. The mediums used, whether pencil, charcoal, pen and ink, water-color, or pastel, are selected to suit the work to be done. The drawing room is well equipped with type forms, casts, and such materials as are helpful in art education.

The mechanical drawing course embraces perspective, plane geometry, and plane projection.

Courses in hand work, such as free cutting, paper construction work, weaving, clay work, and sand table work, are given in the primary grades of this school.

In the first and second years of the high-school course, which is planned primarily for college entrance, free-hand, mechanical, and architectural drawing are required.

2. The Young Men's Christian Association and two business colleges are private schools giving evening courses. The work of the business colleges is commercial education. The Y. M. C. A. work is largely industrial in character.

Six industrial courses were offered by the association, namely, elementary and advanced mechanical drawing, architecture and building construction, sheet-metal work, electricity, and shop mathe-

matics. In these classes there were enrolled, during the year 1915–16, 71 young men of the ages of 17 to 21 or over. The drawing courses were most in demand, judging by the enrollment in the different classes. These courses were taught by practical men.

2. PROVISIONS FOR INDUSTRIAL EDUCATION IN THE INDUSTRIES.

APPRENTICE AGREEMENTS.

As the result of inquiries made of manufacturers only three reported having any apprenticeship agreements. Some firms which were not reached are reported to have agreements. One such firm maintains a regular class at the Young Men's ChristianAssociation one night each week. Several firms pay the tuition and traveling expenses, besides allowing some time off, of boys who attend schools in Philadelphia. It is understood that Delaware College will arrange cooperative courses in engineering at an early date.

One manufacturer reports that the opportunities for boys who go through the apprentice system with a reasonable education are fair if they are willing to work with their hands and their brains.

Superior ability and unusual interest in the business seem to work almost invariably for the shortening of the apprentice period or for more rapid advancement.

Several employers are encouraging their apprentices to attend night school or to undertake correspondence-school work. Apprenticeship agreements, however, are rare. According to the opinions of many of the employees in Wilmington apprenticeship agreements constitute one of the greatest needs in the labor situation.

One manufacturer reports that, "We pay their tuition at Young Men's Christian Association night school." Another says, "At Christmas time, to encourage the apprentices, the length of their apprentice period is reduced certain periods." For instance, a boy in the second or third year, who has been attentive to his work and has made progress, will receive as high as six weeks' reduction in the apprenticeship period. If the reduction is made in the second year, for example, this brings him six weeks nearer to the period when he receives the increased rate of wages, and also the date when he receives his freedom. Similarly, for boys who do outside work, usually drafting-room work at the Young Men's Christian Association, an arbitrary reduction is made running from two to three weeks.

The representative of a large ship and car building establishment stated that they offer to apprentices in the following-named departments a free course in the Young Men's Christian Association night school after they have served one year, provided their attendance during that year has been 97 per cent or more of the working year: Blacksmith shop, tin and copper shop, pattern shop, pipe shop, machine shop, joiner shop, paint shop, mold loft, and electric shop.

CHAPTER VI.

SUGGESTIONS FOR A PROGRAM OF INDUSTRIAL EDUCATION.

I. ESSENTIAL ELEMENTS TO BE PROVIDED.

A survey of a school system or of any other system or situation should be constructive in character. This is an age of efficiency, one of economy in management. This applies as well to school systems as to big business. The time used to be when a school put a new subject into its curriculum because a neighboring school had done so, or because it was being talked about at educational gatherings. To-day conditions have changed. Changes are made in the course of study or in the administration of the system largely because an inquiry into conditions warrant and suggest such changes.

Also the time has passed when a school system may be considered as a thing by itself in a community, an institution unaffected by other institutions and agencies. The schools should be an active force in the entire life of a community, and in formulating their curriculum and in their entire organization. The means by which people in a given locality make their living, the industrial life of a community, has more to do with shaping the customs and social institutions of that community than any other agency or force. The schools are no exception. But to a large degree they have ignored this force. There is now in many parts of the country a popular conviction that the schools should serve more effectively the majority of the people as well as the small minority representing those who are to go into higher institutions of learning and into the professions.

The demands for commercial education first had their effect, and commercial and business courses are now found in many high schools. The demands of industrial education (another phase of vocational education) must also receive consideration. These demands are the more insistent as the calls for more skill in industry and more attention to industrial design become more pronounced, and because of the realization that industry itself is gradually leaving to other agencies a large part of the responsibility it formerly assumed in the training of youth for its life work.

The schools of Wilmington are trying to meet the demand, which is a heavy one. But the schools, unaided by industry itself, can not meet the call for young people trained ready for work in the multiplex industrial system. To a considerable degree through its public schools, its private and parochial schools, the city has been meeting the demand for general knowledge and culture. These schools have given some attention to training for citizenship; recently the foreigner has had his needs for citizenship met in a more definite manner in the Americanization schools established under the public school system. But, in the education of every individual there are three essential elements to be provided—education for general knowledge and culture, education for citizenship, and third, but not less important, education for vocation.

In many respects the work in manual arts in the public and private schools of Wilmington is excellent, much better than the average, but it does not go far enough to meet the demands for the industrial phase of vocational education. To a large degree Wilmington is an industrial city, and its importance in this respect is increasing. Both employers and employees recognize the need for industrial education, and they are ready to cooperate with the school authorities in working out a practical plan of action.

II. SUGGESTIONS FOR INDUSTRIAL EDUCATION IN THE SCHOOLS.

During the school year 1915-16 there were approximately 17,000 children in the schools of Wilmington, of whom 12,000 were in the public schools and 5,000 in the parochial and private schools. Of the 12,000 children who were enrolled in the public schools, approximately 8,000 were in the primary grades (grades 1 to 5 inclusive), 2,800 in the grammar grades (grades 6 to 8 inclusive), and 1,200 in the high schools.

All of the grammar grade white pupils are accommodated in four buildings which are centrally located in the city. There is but one white high school. Thus centralized, the pupils may the more easily be reached for purposes of industrial education.

THE PRIMARY GRADES.

In these grades there should be no differentiation in the work for boys and girls. Something of a general knowledge of the fundamental industries should be the aim of the work in the manual arts. The handling of materials which are used in the industries is in itself worth while, and leads to considerable industrial intelligence. Educational leaders have pointed out that in an industrial democracy every citizen should have more or less industrial intelligence and the

industrial appreciation and sympathy which will grow out of suitable work in the manual arts.

In the primary grades the children are too young for specialization, but they should work with the materials which are used in the fundamental arts of industry. Wood, metal, paper, clay, and textiles should be handled and formed into simple articles of value. The materials themselves should be the basis for study as to the sources from which they are derived, for study of the developing processes which have brought them into the varied uses of modern times, and for a study of their manufacture in its simpler forms. The classroom work should be accompanied with talks by the teachers, visits to museums and to the industries themselves. Correlation with number work, history and geography stories, and nature study, should be made at all times.

The work should be under the direct charge of the regular grade teachers. Designs for the things to be constructed should be made by the pupils so far as practicable. The so-called art work and the industrial arts should work together at all times.

The best results will be obtained if the use of a single material is not confined to any one grade, but if all materials are used in as many grades as the developing work demands.

The development of skill should not be overemphasized. Of course, at all times a child should do his best, but skill is not to be the chief aim in the lower grades. A broad and general acquaintance with the industries by actual participation in typical activities is to be sought.

All theory and discussion should arise out of the actual work with materials. Valuable suggestions in detail for work in the grades may be obtained from the courses of study which have been published in a number of progressive cities.

The handwork may be conducted in the regular classrooms. Little special equipment will be necessary. A special worktable or bench in the front of the classroom will be helpful.

The grade teachers should have the assistance and advice of the art and industrial arts supervisors.

Often the children of a room may be organized into a miniature factory force for the making of some articles needed in the school. The tablets or notebooks will provide such an occasion. Small looms to be used in weaving may be made in this way by one grade for the use of pupils in a lower grade.

The art and handwork as now being done by the grade teachers under direction of the art supervisor may be made the basis for further development along the lines suggested above. A resourceful supervisor of industrial arts will be necessary to develop the course as it should be.

It is suggested that sewing which is now being given to the fourth and fifth grade girls be omitted until the sixth year, and that it be replaced by work suggested above. This refers to fine sewing. Work with textiles, weaving, and the coarser stitches should be included in the work of the primary grades. This work affords a good introduction to the finer sewing of the upper grades.

THE GRAMMAR GRADES.

The industrial arts work of the primary grades is to be given for purposes of general education and culture. It provides a good foundation for the specialized industrial and household arts of the upper grades. The handling of materials and the performing of the simpler processes of construction, together with talks by the teacher, study, and visits to factories, which will accompany the practical work as a study of the fundamental industries is made, will lay a strong foundation for the more specialized and intensive study of a few industries in the grammar grades.

It is in the upper grades that the effects of elimination are most felt. Compulsory school attendance ends here; the majority of the children drop out of school. As, in the primary grades, the purpose of the work is for a general acquaintance with the industries, so, in the grammar grades, the work should be, to a large extent, for purposes of vocational guidance, to assist in finding out aptitudes and vocational tendencies.

The work for boys and girls should be differentiated. Each child should become acquainted with the chief industries in which members of the same sex are engaged. These should represent the large trade groups, and industries of local importance should have a prominent place among those selected for study.

The boys and girls of the grammar grades are still too young to make direct preparation for the trades. But more or less of industrial intelligence and appreciation should precede industrial efficiency. And these things are essential in the education of every individual, whether he goes into the industries or not. In the grammar grades the pupil should be given an opportunity to gain sufficient knowledge of the industries to discover whether he is best adapted to enter the industrial group of occupations; and also, to some extent at least, he should be able to find out the particular group of industries for which he has a liking or special aptitude.

The boys of the grammar grades should make a study of from three to six of the principal industrial occupation groups. Probably the best manner in which to present each occupation group is by a more or less intensive study of one of the principal trades in that group. Some of these groups are the metal-trades group, the build-

ing-trades group, the printing-trades group, the electrical group, the machine operating trades group, the agricultural group, and so on.

As was suggested for the primary grades, practical work, actual participation in typical industrial processes, should form the basis for each course. Study of materials used, methods and processes of manufacture, and labor conditions in each industry should be taken up as the practical work progresses. At all times theory should follow and grow out of practice. As they work with their hands, the children will ask questions, they will want to know the "why" of what they are doing; thus opportunity for theory, for supplemental study, will arise.

In like manner, the work for the girls should be organized. Various phases of the household arts should be developed, including foods and food preparation, textiles and garment making, and the care and management of the home. In addition, some attention should be given to the principal trades open to women. Some of these are connected with the operating of machines of various types. Probably little of practical nature can be done with the latter phase of the girls' work for lack of equipment, but classroom work may be attempted in conjunction with visits to factories.

Home planning, furnishing, and decoration are phases of work of great value to girls.

The art work should be largely in the nature of design, and closely correlated with the constructive work both of the boys and of the girls.

Special teachers are required to take care of the industrial and household arts work of the grammar grades; likewise special rooms and equipment are needed.

In the four buildings housing the grammar grades, instruction in art work and sewing are being given to all girls, woodworking to the boys of at least two of the larger schools, and mechanical drawing and some form of construction work to all boys. Special rooms and some special equipment are being used now in each school. Sewing and art supervisors, special teachers of art, sewing, and construction work (only one man, however) are employed at present in these schools.

The most important step essential to the development of a good course in the industrial arts in the grammar grades is the employment of a capable man for the work in each school, at least one for each of the two larger schools. One instructor for the smaller schools combined might answer for the present. Part of the time of an industrial art director should be given to the grammar grades.

Instead of woodworking only, several lines of industrial work should be undertaken. Table 57 suggests a general outline of courses.

TABLE 57.—*Suggested course in industrial and household arts for grammar grades.*

Grades.	Boys.					Girls.		
	Design.	Mechanical drawing.	Industrial arts.			Design.	Household arts.	
			Course A.	Course B.	Course C.		Course A.	Course B.
Sixth	Largely articles to be made (a progressive course).	Largely working plans of articles to be made (a progressive course).	Carpentry	Printing	Bookbinding and printing each one-half year.	Related to household and home planning, furnishing, and decoration.	Sewing	Sewing, cookery, and general home management.
Seventh	Same, with new principles of design.	do	Elementary benchwork in wood.	Woodwork (carpentry or benchwork).	Woodwork (carpentry and benchwork each one-half year).	do	do	Do.
Eighth	Same, with new principles of design.	do	Elementary metal work.	Metal work	Metal work and electricity each one-half year.	do	Cookery	Do.

At first, and until additional equipment can be provided, course "A" should be undertaken. Here two lines of woodworking, followed in the eighth grade by metal working, are suggested. The course in metal working can be carried out with very little equipment other than that used for woodwork. The rougher carpentry work suggested is even more closely related to actual industrial work than the usual bench woodwork given in schools; it will appeal to the boys more, and provides opportunity for doing work for the school of practical value.

To some extent the industrial arts work may be self-supporting; the material used, at least, may be covered by the value of the product.

SUGGESTED OUTLINES OF COURSES.

Printing is a very important industrial-arts course, and need not involve great additional expense to the school, because much printing for school use can be done in the school shop. Suitable equipment for printing costs about as much as equipment for woodworking. A separate room will be required, or one end of one in the present shops.

A course in bookbinding and paper and cardboard work should take up problems which are thoroughly practical. The equipment for this work need not be expensive. No separate room need be provided.

Equipment for cookery need not be elaborate or very expensive. Excellent work, at least for a beginning, may be done with a modest equipment. A separate room is desirable.

The following outlines of courses in paper, printing, frame-house construction, elementary benchwork, and metal work were developed by a committee of teachers, and are here suggested for adaptation to the requirements of the Wilmington schools.

Paper manufacture and industries using paper.

No.	Group.	Processes.	New tools.
1	Paper making (hand process).	Beating, pouring, screening, pressing, drying, calendering, cutting, counting, jogging.	Screen, felt, beater, iron, paper cutter.
2	Envelopes and portfolios.	Cutting, folding, pasting	Scissors, rule.
3	Boxes and cases	Cutting, creasing, folding, pasting	Knife.
4	Tablets	Counting, cutting, covering, jogging, gluing, cutting down, taping, trimming.	Tape and screw presses.
5	Composition books	Counting, jogging, folding, sewing, taping, trimming.	
6	Pamphlet covers	Cutting, folding, taping	
7	Loose-leaf covers	Cutting, binding, folding, punching, putting in eyelets.	Punch.
8	Bookbinding (casing style).	Marking, sawing, sewing, gluing, rounding, trimming, casing.	Sewing-frame, backing-press, glue pot, brush, hammer.
9	Book mending	Mending torn leaves, loose leaves, damaged cover, re-covering, etc.	

The industries using paper in some of its forms are numerous and seem especially well adapted to average school conditions. A special room is not necessary, neither are many and expensive tools.

Many articles which can be made, coming under each group, may be of use in the school. The necessary equipment for this work may soon be paid for in the saving to the school of the expense of purchasing many things which can be made by the pupils taking the course.

Printing.

No.	Group.	Processes.	Topics for discussion, etc.
1	Composition	Learning case, holding stick, setting type, cutting leads.	Historic methods of transmitting knowledge, discovery of movable type, capitalization, punctuation, dividing words into syllables, spacing, printing measurements, linotype machines, proof reading.
2	Distribution	Wetting, distributing	
3	Proof	Moving type from stick to galley, tying, taking and correcting proof, correcting type.	
4	Imposition	Moving type to stone, placing furniture and quoins, locking form.	
5	Presswork	Making ready tympan, overlay and underlay; proper impression; inking; feeding.	Invention of printing press, composition of rollers and ink, mixing colors, historic presses.
6	Job printing		
7	Methods of illustrating.	Wood-cut and block-letter making	Wood cuts, stereotype, chalk plates, etching, photo-engraving, electrotyping.

Many things for the school may be done in this course, such as printing programs, cards, stationery, the school paper or magazine, posters, blanks, etc.

A special room is almost absolutely essential, as well as considerable special equipment. However, the expense need not be more than in equipping for benchwork in wood.

This is an industry that is rapidly being given a place in the school curriculum, and it is meeting with much favor with school authorities.

Frame-house construction.

No.	Group.	Processes.	New tools.
1	Staking off and getting levels.	Measuring, squaring, leveling	Hatchet, level, square, measuring pole, straightedge.
2	Excavation	Digging	Spade, pick, shovel.
3	Foundation	Mixing, tempering, pouring, or laying.	Box, screen, trowel.
4	Floor frame	Sawing, fitting, squaring, nailing	Saws, chisel, hammer, mallet, try square.
5	Wall frame		
6	Wall sheathing		
7	Roof frame		
8	Roof sheathing		
9	Roof		
10	Making and setting frames.	Chalk lining, nailing	
11	Siding	Planing, fitting	Planes.
12	Exterior finish—painting.		
13	Floors	Painting	Brush.
14	Interior finish—painting, staining, varnishing, etc.	Blind nailing, matching	
15	Hanging doors, sash, screens, etc.	Fitting, hinging, putting on locks, etc.	Screw driver, gauge, brace, bits.

This is an important industry and one found in every community. A practical building problem is possible in every school. Such projects as shed for outdoor physical apparatus, tool house for the school garden; garage, children's play house, poultry house to be sold; partitions in the school basement, etc., are possible.

A boy having had this course, with work carefully selected from the different groups, will be as well qualified to take up cabinet-making in the high school as one who has had an elementary benchwork course in wood in the upper grades.

Elementary bench work.

No.	Group.	New tools.	Processes.	Projects.
1	Laying out	Rule, try-square, framing square, dividers, etc.	Measuring, lining, gaging, describing circles, etc.	Board loom, checker board, target, rule.
2	Cutting out	Back, rip, and crosscutting saws.	Sawing, using bench hook, trestles, and vise.	Sandpaper block, bench-hook 4-piece loom.
3	Squaring to size	Planes	Planing and testing	Boxes, miter box.
4	Modifying:			
	a. Using plane	T-bevel	Chamfering, beveling	Clothes cleat, cutting board, cylinder.
	b. Using chisel	Chisels	Paring	Bookrack, tool rack, picture frame.
	c. Using gouge	Gouges, veining tool	Hollowing out, cutting grooves.	Desk tray, bookrack ends.
	d. Using turning saw.	Turning saw	Outside and inside curve sawing.	Picture frame, coat hanger.
	e. Using spokeshave.	Spokeshave	Smoothing curves, modeling.	Handles, pointer, coat hanger.
5	Sharpening tools		Grinding, whetting	Chisel, plane iron, gouge knife.
6	Smoothing	Scraper, sandpaper	Scraping, sandpapering	
7	Finishing	Brushes	Applying finish and rubbing down.	
8	Fitting and assembling.	Brace, bits, clamps	Boring, cutting	Trestle, cross stand taboret, mitered frame, stepladder, sled, shelves, cases, bookbinding, clamps, apparatus.
9	Fastening	Hammer, screw driver, nail set, etc.		
10	Finishing: Reviewed and continued.			

This course in bench work in wood has several distinctive features. One is the clear separation of work into groups, each group standing for certain definite tool processes. Also in each group some projects are entirely completed. To do this some other tool processes may have to be introduced into the group incidentally, but these processes have only a minor place there. The principal work on each project is done with the tools of the group.

Another feature for which this course stands is that of constructing many really useful projects, a number of which are for use in the school. Boys often, if properly directed, take more interest in making articles for the school than for themselves.

Metal work.

No.	Group.	New tools.	Processes.	Projects.
1	Wire work	Flat and round nose pliers, files, vise, rule, draw plate.	Cutting, bending, forming, wire-drawing.	Staple, skewer, paper clip, ring, chain, hinge, corkscrew, carpet beater, coat hanger.
2	Strip metal work	Cold chisel, center punch, snips, hammers, drills, awl, try-square, rivet set.	Drilling, riveting, cutting, banding.	Picture hook, clip, angle iron, hasp, bracket, stand, candlestick, shade.
3	Sheet metal (without solder).		Cutting, bending, drilling, sawing, filing, riveting.	Book corners, blotter-pad corners, box, candlestick, shade, lantern.
4	Sheet metal (with solder).	Soldering iron, torch, creaser.	Cutting, bending, casing, stiffening, soldering.	Pipe, biscuit cutter, cup, funnel, pail.
5	Filing and fitting	Variety of files	Cutting with snips and chisel, filing, fitting, testing.	Escutcheon, key, wrench, calipers.
6	Shaping from the flat.	Beating, planishing and finishing hammers, anvils.	Raising to shape, planishing, filing, annealing, polishing, coloring with flame, acids, etc.	Tray, candlestick, plate cup, bowl, covers.

So often in the elementary school practically all of the construction work provided for the boys has been woodworking. The woodworking industries are important ones, but there are other and just as important fields, among them the metal-working industries holding an important place. In the State of Delaware the metal-working industries are so important that they should have a place in every course of study in the industrial arts.

It is possible to carry out a large part of this course in metal work on the woodworking benches and with a small amount of additional equipment.

A great many useful articles may be made from metal. This is a good "tinkering" course for boys, enabling them to do many repair jobs about the home.

TIME ALLOWANCE.

At present two hours per week in the sixth grade and two and one-half hours in the seventh and eighth grades are being devoted to art and manual training for the boys, and the same amount of time for art and sewing for the girls. This is as much time as is usually given to these lines of work in public schools, though hardly sufficient to realize the possibilities of the new work suggested. An additional hour per week is desirable.

It is further suggested that in one of the grammar schools, at least, one sixth grade, one seventh grade, and one eighth grade be permitted to arrange schedules so that one-half of each day may be given over to industrial and household arts. Preferably groups of boys and girls who are most apt to drop out at the end of the grades, and who will probably enter the industries, should be selected.

All of the academic work of these selected groups should be closely correlated with the industrial work.

Course C, Table 57, provides for six different lines of work in the three grammar grades. Such industrial classes should be able to do a certain amount of repairing for the school and to make a great many needed articles.

Each different kind of work, whether in this more extended industrial course or in the briefer course, will open up to the boy or to the girl a different industry. By this means they will be better able to decide whether industrial work is suited to them, and to judge as to what group of trades appeals to them most, and for which one they seem to have the most aptitude.

At present only a very little woodworking is given to the boys before they reach the high school. Consequently, the outlook upon conditions in industry secured by boys in the Wilmington public schools is extremely limited.

A variety of different industrial courses should have some influence in keeping boys and girls in school. Mr. Grantland, the State child labor inspector, says that what is most needed in the Wilmington schools is considerable "elementary industrial work for boys who never will reach the high school."

THE HIGH SCHOOL.

Conditions in Wilmington warrant the giving of more attention at present to the development of strong industrial arts and household arts courses in the grammar schools than in the high school.

However, the high school already possesses equipment which can be more fully utilized and the school is not fully serving its purpose unless it does more in these lines than at present.

As already indicated, definite apprenticeship systems are found in but few of Wilmington's industries. The time is ripe for the public school to do its duty in cooperating with the industries in training young people for industrial employment.

The high school can still further serve the community in organizing special industrial classes, admitting boys and girls who have not necessarily completed a grammar-school education but who are over age for the grades and who are industrially inclined.

Because children are over age for the grades and are discouraged in attempting a regular grammar course or a regular high-school course should not necessarily mean that they can get no further benefit from the schools. Special industrial classes in the high school, where more elaborate and varied equipments will be found, should take care of such pupils.

It seems wise to require not more than one year of industrial and household arts of all pupils in the high school. This should be the first year, and one and one-half hours per day should be given to the work.

Design and mechanical drawing related to the industrial course should be required in this year. This may have to be given during a part of the 1½-hour industrial-arts period.

For the boys, the first year's work might profitably be divided equally between elementary cabinetmaking and metal working, somewhat as at present. The courses should, however, represent more than mere shopwork. Study of materials, processes of manufacture, history of the industry, and the like, all closely related to the shopwork and growing out of it, should be made a part of each course. The construction should be based on designs made by the pupils. Mere exercise work should be reduced to a minimum and arranged to precede immediately the practical problem employing the exercise.

The first year's work required of the girls might be divided between sewing and cookery, with accompanying work in design.

Elective courses for both girls and boys should be offered. For boys there might be forging and art metal work; wood turning pattern making, and foundry work; advanced machine-shop work; printing; electrical construction; and so on. For the girls, elective courses should include sewing; cookery; house planning, decoration, and furnishing; art crafts, such as leather work, pottery, art metal, etc. Each course should be accompanied by related design and working drawing courses pursued at the same time.

SPECIAL COURSES.

This study developed the fact that a number of the workers in the trades had taken at least a partial high-school course; also that both boys and girls were dropping out of the high school to enter the trades.

The manufacturers stated almost unanimously that they preferred apprentices who have had some high-school work. The industries of Wilmington to a very high degree require skilled workmen; a number of regular high-school courses would materially help such employees to a better understanding of their work.

Two years ago one of the high-school manual-training teachers found, on investigation, that 14 manufacturers were ready to join with the high school in arranging cooperative courses for boys. This study showed the same general attitude on the part of other manufacturers. It seems that the only reason that this work has not already been started in the high school is the lack of needed funds. These should be provided, and several such courses started at once. The metal-working industries seem to furnish the best place for making a beginning.

EVENING CLASSES.

In evening classes, the greatest need seems to be for short unit courses along a number of lines. Various trade groups should be provided for.

Foremen and others of exceptional ability in the different industries, who possess some teaching ability as well, could be called upon to give some of these courses. The industrial arts supervisor might be a suitable person to have general supervision of this work, or possibly one of the industrial arts teachers. No doubt a number of courses could be given by the industrial arts teachers in the schools.

Blue-print reading, estimating, mechanical drawing, architectural drawing, different branches of shop mathematics, use of the framing square, are courses for which a need was expressed by the workers. Courses in the common branches are now given by the schools. This work should be given in the same buildings with the industrial

courses, and those schools should be selected which will reach the workers in different sections of the city.

A number of short courses of a few weeks' duration, each for which there seems to be the greatest demand, should be offered first, and others organized as demand arises.

III. SUGGESTIONS FOR INDUSTRIAL EDUCATION IN THE INDUSTRIES.

APPRENTICESHIP AGREEMENTS.

According to the United States census for 1910, there were 417 apprentices—371 males and 46 females—in the manufacturing and mechanical industries of Wilmington. From the statements of groups of workmen in the various industries of the city, there are very few instances of definite agreement between employer and apprentice. A number of workmen made the statement that the thing most needed by Wilmington industrial workers is a revival of the apprenticeship agreement, adapted to present conditions.

Employers stated almost unanimously that apprentices and workmen in their employ are given every opportunity to learn the various phases of their different lines of industry by being shifted about as much as possible, but there are few definite agreements to this effect between employer and union or employer and apprentice.

In Wilmington, as also brought out in the Minneapolis survey, the helper system is largely replacing other forms of apprenticeship. Probably little can be done here, as elsewhere, in working up sentiment among the employers for trade agreements. The boy himself seems averse to anything very binding on his part, frequently changing from one industry to another or from one employer to another after starting on his apprentice period.

A few progressive manufacturers are encouraging their apprentices to attend evening schools at the Young Men's Christian Association and elsewhere, often paying their expenses or otherwise making it worth while for them to attend. Several employers are even maintaining special evening classes for their employees.

Employers, in general, however, seem ready to work with the schools in organizing and maintaining cooperative courses and evening classes. No doubt the majority of them would give financial or other material encouragement to apprentices to attend these latter if the schools would establish them.

SUMMARY OF SUGGESTIONS.

1. That a capable supervisor of industrial arts (a man) be appointed and that men teachers for the industrial arts work for the boys of the grammar grades be appointed.

2. That both for boys and for girls in the grammar schools several different lines of industrial work be provided, instead of only one for each as at present.

3. That in one of the grammar schools (or possibly in the high-school building) special industrial classes be established, devoting one-half of each day to industrial work.

4. That throughout the school system the art work place more emphasis on design, and be more closely correlated with the work in industrial and household arts.

5. That several elective courses in industrial lines for boys and girls in the high school be offered.

6. That special industrial courses be offered in the high school, open to boys and girls industrially inclined although they may not have completed a full grammar course.

7. That cooperative courses be arranged by the high school in conjunction with the metalworking and woodworking industries.

8. That short unit evening courses in a number of industrial lines be organized for industrial work; these to be given in several public school buildings.

APPENDIXES—FORMS USED IN MAKING THIS SURVEY.

APPENDIX A.

Washington, D. C., November 29, 1915.

DEPARTMENT OF THE INTERIOR,
U. S. Bureau of Education.

INDUSTRIAL EDUCATION SECTION, DELAWARE STATE SURVEY.

PURPOSE.

The purpose of the Industrial Education Section of the Delaware State Survey includes the following studies, so far as may be possible in the limited time available:

1. A study of the schools, to determine what kind, and how much, education the young people of the State are receiving, and what facilities are available for further development.

2. A study of the industries, to determine the extent of the demand for young people, the qualifications expected of the workers, something of the character of the occupations engaged in, and the need of education.

3. A study of present provisions for industrial education.
   (*a*) In the schools.
   (*b*) In the industries.

4. Suggestions for a program of industrial education.

NOTE: This inquiry will necessarily be limited to the city of Wilmington for the present.

OUTLINE OF STUDIES.

I. *A study of the schools.*
   1. Legislation affecting school attendance.
      (*a*) State.
         (1) Compulsory attendance laws.
         (2) Child labor laws.
         (3) Regulations of State Department of Education.
         (4) Enforcement.
      (*b*) County and City.
         (1) Enactments.
         (2) Regulations of Boards of Education.
         (3) Enforcement.
   2. The Schools.
      (*a*) Organization.
      (*b*) Financial support.
      (*c*) Enrollment and classification of pupils.
         (1) Facts and comparisons.
         (2) Proportion of persons of school age in school.
      (*d*) Service rendered to those not in regular day schools.
      (*e*) Courses of study.

I. *A study of the schools*—Continued.
3. Elimination of pupils from the schools.
(*a*) Facts and comparisons.
(*b*) Facts concerning 13–14-years-old pupils in school.
(*c*) Facts concerning high school boys and girls.
II. *A study of the industries.*
1. Importance and scope.
2. Industrial pursuits.
(*a*) Listed in order of importance.
(*b*) Value of products, and number of employees.
(*c*) Analysis of principal occupations.
(*d*) Wages and hours of labor.
(*e*) Opportunities for advancement.
(*f*) Demand in each for general education, special trade education, special manipulative skill.
(*g*) Demand in each for boys and girls
3. Young people in the industries.
(*a*) Those working under special permits from the State.
(a) Permit boys.
(b) Employment-certificate boys and girls.
(1) School history.
(2) Present occupations
(3) Prospects for advancement.
(*b*) Older boys and girls.
(1) School history.
(2) Efforts to continue education.
(3) Present occupations.
(4) Prospects for advancement.
(*c*) Educational needs.
(1) As expressed by the workers.
(2) As expressed by employers.
III. *Present provisions for industrial education.*
1. In the schools.
(*a*) Public schools.
(1) Day schools.
(*a*) Elementary.
(*b*) High schools.
(*c*) Continuation schools.
(2) Evening schools.
(*b*) Private schools.
(1) Day schools.
(2) Evening schools.
2. In the industries.
(*a*) Apprenticeship agreements.
(*b*) Special schools or classes.
(*c*) Shifting of workers to secure knowledge of various processes, machines, etc.
(*d*) Encouragement of workers to self-improvement.
IV. *Suggestions for program of industrial education.*
1. Essential elements to be provided.
(*a*) Education for general knowledge and culture.
(*b*) Education for citizenship.
(*c*) Education for vocation.

IV. *Suggestions for program of industrial education*—Continued.

2. Provision in the schools.
   (*a*) Elementary schools.
   (*b*) High schools.
   (*c*) Special schools or classes during the day.
   (*d*) Evening schools or classes.
3. Provision in the industries.
   (*a*) Apprenticeship agreements.
   (*b*) Special schools or classes.
4. Cooperation involving workers, employers, and the schools.

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APPENDIX B.

DEPARTMENT OF THE INTERIOR
U. S. Bureau of Education

INDUSTRIAL EDUCATION SECTION
DELAWARE STATE SURVEY

RECORD OF 13 OR 14 YEAR-OLD PUPIL.

Name_____ Boy or girl_____ Grade_____ Age_____
School_____ Teacher_____
Place of birth: Post office_____ State_____
Country (if not born in United States)_____
Do you intend to finish the eighth grade?_____ To go to high school?_____
To any other school, or college?_____ What?_____
Are you now employed at any kind of work out of school hours?_____
If so, at what kind of work?_____
What do you plan to do to earn a living when you grow up?_____
Why do you plan to do this?_____
Place of your father's birth: Post office_____ State_____
Country (if not born in United States)_____
What is your father's occupation?_____
Give age of each brother under 21 who is at work and his occupation:
1. Age_____ Years; Occupation_____
Name_____ Address_____
2. Age_____ Years; Occupation_____
Name_____ Address_____
3. Age_____ Years; Occupation_____
Name_____ Address_____
Give age of each sister under 21 who is at work and her occupation:
1. Age_____ Years; Occupation_____
Name_____ Address_____
2. Age_____ Years; Occupation_____
Name_____ Address_____
3. Age_____ Years; Occupation_____
Name_____ Address_____

APPENDIX C.

DEPARTMENT OF THE INTERIOR, U. S. Bureau of Education — INDUSTRIAL EDUCATION SECTION, DELAWARE STATE SURVEY

RECORD OF PERMIT, BOY OR GIRL.

Name of child_____ Sex_____ Race_____
Place of birth_____ Date_____ Age_____
Date of permit_____
Applicant's name_____ Relation to child_____
Reasons for going to work_____
Hours when he or she is to work_____
Grade in school when this permit is granted_____
Regularity of school attendance_____
Conduct of child in this grade_____
Physical condition of child_____
Effect of work on character of school work_____
On school attendance_____ On conduct_____
On physical condition of child_____
When did child permanently withdraw from school_____
Why?_____
First occupation_____ Kind of merchandise_____
Date began_____ Date left_____ Earnings per week_____
Second occupation_____ Kind of merchandise_____
Date began_____ Date left_____ Earnings per week_____
Third occupation_____ Kind of merchandise_____
Date began_____ Date left_____ Earnings per week_____

APPENDIX D.

DEPARTMENT OF THE INTERIOR,
U. S. Bureau of Education

INDUSTRIAL EDUCATION SECTION
DELAWARE STATE SURVEY

RECORD OF HOLDER OF GENERAL EMPLOYMENT CERTIFICATE.

Name_____Boy or girl_____Race_____
Place of birth_____Date_____Age_____Years.
Date of application for certificate_____Date issued_____
Applicant's name_____Relation to child_____
Applicant's address_____Occupation_____
Reason given for going to work_____
Grade in school when left to go to work_____
Quality of work done in this grade_____In grades below this_____
Regularity of school attendance_____Deportment_____
Physical condition of child_____
Did this child reenter school after leaving to go to work?_____
First position.—Kind of work_____When employed_____
Name of firm and business_____
When left this position_____Why?_____Wages_____
Second position.—Kind of work_____When employed_____
Name of firm and business_____
When left this position_____Why?_____Wages_____
Third position.—Kind of work_____When employed_____
Name of firm and business_____
When left this position_____Why?_____Wages_____
Fourth position.—Kind of work_____When employed_____
Name of firm and business_____
When left this position_____Why?_____Wages_____

APPENDIX E.

DEPARTMENT OF THE INTERIOR,
U. S. Bureau of Education

INDUSTRIAL EDUCATION SECTION
DELAWARE STATE SURVEY.

To the Principal of School No.—:

During 1915 the boys listed below were granted permits to work outside of school hours. Please indicate whether, in the judgment of yourself and his room teacher, there has been any noticeable change in each boy in the particulars noted below since he has been working. Other information about any of these boys will be be appreciated. Please return this blank with information to the superintendent's office not later than January 14.

Name.	Date of permit.	Grade.	Character of school work.	School attendance.	Conduct.	Physical condition.	Remarks.
.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....

APPENDIX F.

DEPARTMENT OF THE INTERIOR INDUSTRIAL EDUCATION SECTION
U. S. Bureau of Education DELAWARE STATE SURVEY

RECORD OF WORKER UNDER 21 YEARS OF AGE.

Name_____ Sex_____ Age_____Years.
Home address (Street and No.)_____
Place of birth: Post Office_____State_____
Country (if not born in United States)_____
When did you leave school? Year_____Month_____Why?_____
Where did you last go to school?_____
What grade did you complete before leaving school?_____
Was it a public, parochial, or other private school?_____
What correspondence school courses have you taken?_____
What evening school courses have you taken?_____
Do you draw books from the public library?_____
Name and business of your present employer_____
What is your work with this employer?_____
What other work have you done with this employer?_____
How long have you been employed here? Years_____Months_____Weeks_____

Record of previous employment.			Time employed.		
After leaving school.	Employer.	Kind of work.	Years.	Months.	Weeks.
First job					
Second job					
Third job					
Fourth job					
Fifth job					
Sixth job					